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EDITORIAL.

EUROPEAN CHRONICLES.

PARIS, Feb. 15th, 1903.

FOREIGN CONCEPTION OF THE AMERICAN PROFESSION.—I am quite sure that I have spoken to you of the *Revue Générale de Médecine Vétérinaire*, the new journal published at Toulouse, which, with such an editor as Prof. E. Leclainche, is bound to meet with great success; and, indeed, it was with impatience that his first issue was looked for in the French veterinary world. It has come, and has no doubt shown at once what it is going to be, an innovator in veterinary journalism. I, for one, was amazed when I noticed the preëminent part given to the REVIEW among the "revue des publications." Preëminent place! probably by alphabetical order; but, at any rate, our collaborators of the issue of December, such as Reynolds, Williams, Lyford, Coleman Nockolds, Childs and others will be pleased to learn that their articles will receive proper analysis by the editor of the *Revue Générale.*

Keeping on in my examination of the first number of the new journal, I came to an article entitled "La profession vétérinaire en France et à l'Etranger." In it the author makes remarks on the profession in France, Belgium, Switzerland, Germany, England, etc., etc., and the United States. There . . . . I translate what he said:

"*The veterinarians of the United States have lately held in Minneapolis a 'Convention,' which once more has demonstrated*

the exuberant vitality of the profession, and also the unfortunate effects of the liberty of teaching and the absence of all regulations relating to medical practice in most of the States. Pennsylvania counts 1700 practitioners; out of this number, 300 only are graduated from a veterinary college. The multiplication of the schools is again an obstacle to the rising of the profession; if some colleges give serious guarantees, others try to attract students by any kind of means and deliver diplomas to all comers."

Oh! Oh! Prof. Leclainche! You certainly know nothing of the veterinary profession in America; nothing of the societies; nothing of the colleges; and I am sure you would never have written the above, had you had better knowledge or made inquiries.

I will not criticise the part referred to with too much severity—deserved as it may be; and, while we will acknowledge the *exuberant vitality of our profession*, we certainly will also continue to advocate the *liberty of teaching*, and remind our worthy *confrère* that it is years since the *practice of veterinary medicine was regulated in the United States* by State laws, a feat which France has tried to do for years, and is yet far from obtaining.

We certainly will smile at the *1700 practitioners* of Pennsylvania (how enormous must have been the increase since a few years). If it is so, we will ask more severity at the hands of her Board of Examiners, as not only the ranks of the profession will be overcrowded, but what can the 300 graduates only do in that State with *1400 irregulars* to struggle against!

There is, however, something that we cannot let go by. It is the impression that some of our foreign colleagues may get from the last part of Prof. Leclainche's notices, viz.,—that there are colleges which "try to draw students by any kind of means and to deliver diplomas to all comers." I would suggest a single reply: Let every college send him a catalogue, every society direct him a list of its members, with charter and by-laws, and let the National Association give him all the points relating to

the practice of veterinary medicine, regulations, etc., . . . and I am sure the apology will not be long in coming, and will be as frank and true as the errors have been serious.

* * *

TUBERCULAR IMMUNIZATION. — Well, well, $7,000,000! This is a pretty figure, and tuberculosis must be pretty hard to fight if it does not succumb to the army of searchers, of investigators, experimenters, etc., that will come to win them—and yet! That sum was not necessary to stimulate the energy of all those who have been at work towards the object that those seven millions are prepared to repay for all the troubles, the deceived hopes, hours lost, etc.

A short time ago I spoke to you of the experiments of Prof. von Behring. He did not wait for the stimulus so generously put forward by Mr. J. D. Rockefeller. Neither are American veterinarians staying behind. I have read "Some Experiments upon Immunization of Cattle against Tuberculosis," by Dr. Leonard Pearson and Dr. S. H. Gilliland; and certainly American veterinarians will be proud to follow the efforts of our colleagues. But, after all, it is very well to find a cure for such a disease; yet it seems to me that if there ever was truth in a proverb, it is in the saying, "one ounce of prevention is worth ten pounds of cure."

If Behring has already obtained success, if our friends Pearson and Gilliland have reached some valuable conclusions, prevention may not be so far away after all. It is looked for in every country, and now Prof. Thomassen, of Utrecht, records on the subject of antituberculous vaccination the conclusions of a series of experiments he has made in that direction. His attempts to realize immunization were carried out in a plan similar to that of von Behring. It is only under some conditions that experimental infection with human bacillus can be obtained in cattle, and Prof. Thomassen had said in one preceding report that "it is difficult, but not impossible, to produce in bovines a generalized tuberculosis with cultures of human bacilli." But if the infecting power diminishes, specially when the bacilli

have been kept a long time in artificial culture without passage through an animal, and if their origin has also a certain influence on the degree of virulency, they do ordinarily give rise to certain diseased conditions which disappear in a few days or last for several weeks, and the question is: Does this artificial and temporary disease not confer a certain degree of immunity which permits an animal to resist infection of more virulent cultures than those of human origin?

With this object in view, Prof. Thomassen has carried out five experiments, following the plan of von Behring, and from those * has come to the following conclusions:

"Bovines support quite well human bacilli, even when, at the dose of 30 milligrams, they are introduced in the general circulation. In one experiment we see that a recent culture of human sputa, at that dose, gives only an insignificant reaction. Probably the bacilli of that sputum had a weaker virulence than those coming from any organ or a product of secretion, such as milk. Would not symbiosis have an attenuating influence on the microbe of tuberculosis?

"A *first* infection gives rise to reaction only after 10 or 15 days, while after the *second* or a *third* injection of bacilli, hyperthermia appears in 24 hours. Do they act as tuberculin? In that case, it would be proper to admit that in four of the experiments the animals were more or less affected with tuberculosis at the time of the second injection. At any rate, the reaction is more intense after the injection of bacilli than after ordinary tuberculination and it lasts longer. For two of the calves on experiment, the existence of a local tuberculosis of the eye and of the lungs is certain. The result of one experiment shows that with a small dose of human bacilli a certain degree of immunity can be granted.

"The last experiment shows that a minimum quantity of *bovine* bacilli produces more serious and more lasting troubles than four times as much of human bacilli.

"Too large doses of these are injurious, as they may put the

* See *Recueil de Med. Vet.*, Jan. 15, 1903.

life in danger or promote tuberculous lesions that could progress. The process of Behring, beginning with one milligram dose, to reach after several weeks a massive dose, is the proper one to follow. The desiccation of the cultures, reducing considerably the virulence of bacilli, deserves all attention.

"As to the practical value," says Prof. Thomassen in closing his article, "I will not give an opinion until by further experiments in which I will resort to a mode of infection resembling spontaneous contamination, it should be definitely fixed."

Decidedly, the question of immunization against tuberculosis seems to be only a matter of time. Obtained experimentally by Behring, Pearson and Gilliland, and finally by Thomassen, it cannot be long before its practical application will be realized.

* * *

DR. GARNAULT'S TUBERCULAR INOCULATION.—I have promised to keep you posted, if I could, about the results of the experiments to which Dr. Garnault has submitted himself. The report made by Dr. Borrel, of Pasteur Institute, has just been made public. It states first that the deep nodule which followed the second inoculation of Dr. G., was removed on November 12; that parts of it were inoculated to guinea-pigs, which became tuberculous; that other parts were examined through the microscope, and showed changes evidently of tuberculous nature. Dr. Borrel concludes: "It is impossible to say, *a priori*, what would have become, in the organism of Dr. G., of the microbes observed living and virulent for guinea-pigs on November 12, at the time of the extirpation. Would they have finally disappeared, or with time adapted themselves to their new life? It is not possible to decide, although after four months of experiments (those requiring much patience and time)."

The excision asked by Dr. G. has probably put an end to the experiment—if, however, the excision has been radical and complete, and if no virulent element has remained in the wound.

The observed facts can only be registered, viz., that a piece of tuberculous nodule of a cow, inoculated to a man, has produced a local tuberculous lesion, limited until now to the point of inoculation. In this local lesion, tuberculous in structure, bacilli have remained, living and virulent to guinea-pigs up to the last day of the experiment, four months after inoculation and their transplantation from cow and man.

Dr. Garnault makes the following statements: "Unless I remain inoculated in a latent manner, the report tells the conclusions to draw from the experiment. I have no doubt that performed on a debilitated or weak individual, it would have ended easily in general infection. I estimate that the results obtained are sufficient to legitimate, contrary to the opinion of Koch, all the legislative measures taken to protect man, and specially children, against bovine tuberculosis, and against the meat, the milk and milky products of tuberculous animals."

Well, after all, we all knew it, as an old Yankee saying is.

* * *

ANTISEPTIC SURGERY.—It is wonderful for one who considers surgery of years ago and that of to-day what enormous changes have occurred, and it might be said are daily occurring, even in its application to veterinary practice. It is but a short time since traumatism of any kind of a serous membrane was almost always followed by fatal results, and when direct surgical interference upon the abdominal cavity or the peritoneum was considered as not allowed on the plea of forbidden ground. How things are changed since the day of antisepsy, and how often now do we find in our professional journals records of operations where serous membranes have successfully been surgically treated, some times with great severity. What existed for the peritoneum of some animals, the horse for instance, seemed to be almost as dangerous when a synovial sac was the membrane in view, and lesions of tendinous synovials as well as those of articulations have up to late years also remained exempt from audacious surgical manipulations. But antisepsy came and with it surgery. To-day synovials, tendinous or

articular, are opened, washed, amputated, sewed up, and nothing is thought of it, providing strict antiseptic measures have been observed. It is true that in our surgery, thorough asepsy may sometimes be difficult to obtain. Yet, if an animal is cast on a straw bed, the use of an aseptized cover on the straw, as recommended by Le Calve, or that of a rubber sheet, as patronized by Jacoulet, one may safely go on with his work. For Messrs. Meynard and Moran stocks are sufficient, and with them the Vinsot table has answered their purpose; but no matter how the horse is secured, what is essential is strict asepsis of the region, of the instruments, of the dressing material, of the hands of the operator, and with those precautions they have obtained in the treatment of synovial enlargements in the horse by resection excellent results.

After all the preparation required upon the region to be operated, they proceed and carry their operation into what we might call seven steps, viz.: (1) Excision of a fusiform cutaneous flap; (2) dissection of the synovial; (3) removal of a synovial flap, as large as possible; (4) washing of the part with very warm phenic water; (5) suture with catgut of the synovial membrane; (6) interred suture of the skin; (7) large and very compressive dressing with sterilized gauze and cotton.

With this method they have operated on five cases; four on large windgalls and one of a very large thoroughpin. In the first four the cicatrization was perfect, the tumor had entirely disappeared and did not return and the recovery was complete in respectively 20, 22, 29 and 21 days. In the last one there was an attack of paraplegia, which occurred twelve days after the operation, for which he was destroyed. But with that case also the union of the wound existed already on its whole length and the recovery from the operation was certain.

In the *Revue Générale*, where these cases are recorded, the authors say: "These observations show that synovials are no longer forbidden ground, under the express condition to avoid all possible infection of the regions, which, by their position, is always very possible." A. L.

STILL ADVANCING IN NEW JERSEY.

The veterinarians of New Jersey have never rested since the possibilities of united and harmonious action were made manifest by the securing of the act to regulate their practice. They asked for recognition, and received it; they besought the Legislature to create an Examining Board to guard the character of the men who were to practice under their new law, and it was theirs; they asked for recognition on the State Sanitary Board, and were promptly granted it. Not yet satisfied with their portion, they sought to have the office of Chief Veterinarian created to guide the Tuberculosis Commission, which has just been done; and now the Conference Committee of the State Association is getting close to the State officials at Trenton for the purpose of enlarging the scope of the Commission, or of supplanting it by the establishment of a State Commission of Animal Industry. The contemplated change will broaden the work of the Commission, and it is believed will more effectively and economically protect the vested interests of agriculture and animal husbandry, for the reason that the entire work will be more concentrated and under scientific supervision. In creating the important office of Chief Veterinarian (another term for State Veterinarian) our sister State has placed itself squarely in line with the most modern conception of State sanitary legislation, and the appointment of Dr. William Herbert Lowe to that position is a graceful recognition of his distinguished services to the profession of the State and nation, as well as a guarantee to the commonwealth of an intelligent and faithful administration of the duties of the office. The profession is particularly fortunate in this appointment, as he enters upon his duties with a united and harmonious State Association supporting his every effort in behalf of the welfare of his profession and State. The office of the Chief Veterinarian will be in the State House at Trenton, in connection with that of the Commission. Our brethren of New Jersey may well feel proud of their achievements, which are a perpetual object-lesson to less fortunate States.

As illustrating the power of the State Association to acquire legislation in the interests of the profession, it secured the passage through both houses of a bill raising the rank of veterinarians in each troop of the State cavalry from first sergeant to that of first lieutenant; but when the bill reached the Governor he vetoed it for the reason that veterinarians in the regular army are not commissioned officers, he taking the ground that the military regulations of the State must conform to those of the United States Army.

VETERINARY CORRESPONDENCE SCHOOLS.

An Iowa veterinarian, honored by his professional brethren through affiliation with the State Association, and then elevated to the important and dignified position of member of the Board of Veterinary Medical Examiners, at the same time occupying the post of Assistant State Veterinarian, was, at the recent annual meeting of the Iowa State Veterinary Medical Association, found guilty and unanimously expelled from membership for the very grave offense of conducting a "Correspondence School," designed to impart to farmers, breeders, non-graduates, etc., sufficient alleged medical knowledge to enable them to become worthless and therefore dangerous quacks. The Ohio Association also adopted a report denouncing him in unmeasured terms, so that, so far as this individual is concerned, he has received the only treatment from his former colleagues which was possible under the aggravation.

There is, however, nothing startling, peculiar, nor new about this case, nor can there be obtained from it the least reflection upon the profession as a whole or the members individually. Such assinine nincompoops gain entrance into all professions and callings, the ministry seeming a magnet that attracts more of such frauds than any other, while our legal friends are carrying all that a reputable craft can well stagger under. Our sister profession of medicine is permeated with them, and it would be strange indeed if veterinary science had not reached a sufficiently high plane through the reputation of

its true exponents to cause them to seek to take advantage of the opportunities she offers.

But, while there is nothing to excite our wonder that such men masquerade in the respectable garments of the veterinarian, the present case reaches the limit of disreputable audacity, since the offender was from among those who stood with the loyal men of Iowa in their efforts to purify and uplift the profession by holding back all those non-qualified recruits who sought to obtain the legal right to practice. The only method of dealing with such men is the one pursued by the Iowans: Cast them out of the society of respectable veterinarians, branded so plainly that they may be recognized wherever they may seek to ply their dishonest trade, and should any of their dupes attempt to perform the functions of a veterinary surgeon, punish them as the law provides.

FOOT-AND-MOUTH DISEASE.

The subject of foot-and-mouth disease is one which is just now very actively engaging the attention of the veterinary profession of this country. The progress of those engaged in its extermination is watched with intense interest by everyone, but with greater acuteness by the veterinarian. The REVIEW has each month since its unwelcome invasion placed before its readers the freshest news concerning it from first hands. It is with much pleasure that we are in this issue enabled to publish a splendid article prepared for our readers by the Chief of the United States Bureau of Animal Industry, Dr. D. E. Salmon, it being in the nature of a condensation of his article written for the "Yearbook" of the Department of Agriculture. While the subject is very thoroughly considered from all points, it will be noted that he devotes considerable space to a discussion of the importance of slaughter as a means of stamping out an outbreak. There appear to be many, even among the veterinarians of New England, who think the slaughter of diseased herds is not necessary or justifiable. The argument of the author is, therefore, as timely and appropriate as it is logical and convincing.

"A LESSON FROM AMERICA."—Our esteemed contemporary, the *Veterinary Journal* (London) devotes the entire editorial space of its March number to a discussion of the Seventeenth Annual Report of the Bureau of Animal Industry, for 1900, and marvels at the magnitude of the work which this model bureau is accomplishing, while holding its breath in contemplating the wonderful enterprise of the Government in publishing 30,000 copies of such a large and well illustrated book, which contains over 600 pages and nearly a hundred elegant illustrations, many of them in colors. It closes its digest of the report with the following paragraph:

"We leave our readers to digest the above statements, and to reflect upon them. We may return to the subject at another time, but for the present we will content ourselves with pointing out one or two facts. In the first place, the country which issues the report is not conservative France, nor paternally governed Germany, nor autocratic Russia, but the United States of America, the most enterprising country in the world. The Americans do not affect to be guided by sentimental or philanthropic considerations, but are quite frank in their avowal of mere business principles. After all it is right that economic matters should be directed by economic laws; only then can failure be avoided, if not success attained. If, then, the American Government finds that it pays to spend such immense sums in the supervision of its animal industries, ought not the British Government to go and do likewise?"

NORTH CAROLINA is the latest acquisition to States having laws to regulate the practice of veterinary medicine. A bill has just been passed by the Legislature providing for the appointment by the Governor of a Board of Veterinary Medical Examiners to pass on the qualifications of applicants for license to practice.

ACCORDING to the *Bollettina della Publica Instruzione*, the number of veterinary students in Italy during the years 1901-1902 was 1203, as follows: Milan, 200; Naples, 269; Turin, 212; Bologne, 199; Pisa, 109; Perogia, 74; Modena, 53; Parma, 45; Camerino, 42.

ORIGINAL ARTICLES

THE RECENT OUTBREAK OF FOOT-AND-MOUTH DISEASE IN THE NEW ENGLAND STATES.

By D. E. Salmon, D. V. M., Chief of the Bureau of Animal Industry, Washington, D. C.

An unexpected outbreak of foot-and-mouth disease was discovered in Massachusetts and Rhode Island in November, 1902. The United States Department of Agriculture first received an intimation of the existence of this disease on November 14, 1902, in a letter from Dr. Austin Peters, Chief of the Cattle Bureau of Massachusetts, under date of November 12. This letter stated that a disease resembling foot-and-mouth disease had been discovered in Rhode Island and that an investigation would be immediately made and the results reported. On November 17 a telegram was received from Dr. Peters stating that he believed the malady to be foot-and-mouth disease. Immediately upon receipt of this telegram, Dr. John R. Mohler, Chief of the Pathological Division of the Bureau of Animal Industry, was sent to Massachusetts to investigate and report. Dr. Mohler reported in a letter received November 24 that the disease was probably the European foot-and-mouth disease, and gave sufficient details as to symptoms and nature to allow an intelligent opinion to be formed. A calf and two sheep which he inoculated, contracted the disease respectively within two, four and five days.

As there was no history of the introduction of affected animals into the United States, and a declaration of the existence of the disease would have such serious consequences in commercial restrictions, it was deemed advisable to have additional expert opinions. Promptly on receipt of Dr. Mohler's report, Dr. Leonard Pearson, Dean of the Veterinary Department of the University of Pennsylvania, and Prof. James Law, Dean of the New York State Veterinary College, were asked to proceed at

once to Massachusetts and give an opinion as to the nature of the disease. Dr. Pearson started on the same day (November 24), and Prof. Law the following day. Their joint report pronouncing the malady to be foot-and-mouth disease beyond doubt was received November 27, and on the same day orders were issued by the Secretary of Agriculture quarantining the affected States and prohibiting the exportation of animals from the port of Boston. On the first day of December the writer went to Massachusetts to supervise and direct the Federal work of eradicating the disease. Dr. S. E. Bennett, the Bureau's chief inspector at Boston, was placed in charge of the force. In the meantime a number of veterinarians in the service of the Bureau in various parts of the country had been hurriedly summoned to Boston to supplement the local force.

It appeared that the disease had existed in Massachusetts since August. It had extended over the eastern part of Massachusetts and into Rhode Island, and, as investigation subsequently showed, into Vermont and New Hampshire.

It is not definitely known how the contagion was introduced into the United States; but the first herds known to have been affected were in Chelsea in the vicinity of the docks, to which place the infection was no doubt carried from shipping. There are numerous channels by which it could have been introduced from Europe, where it has been very prevalent during the last 15 or 20 years. Horses are being continually imported, with halters, ropes, forage and bedding; small animals, such as goats, are often upon the ships, and fresh hides are a constant article of commerce and may come without sufficient disinfection from countries in which the disease exists. We also get large quantities of hair, wool, and other articles which might bring the contagion. As all cattle, sheep and swine imported from European countries are placed in quarantine from 15 to 90 days, it is impossible that the disease could have been brought with these animals without being recognized before they left the quarantine station.

With such a comparatively wide distribution of the contagion

at the time the disease was discovered, it was a serious problem to decide as to the best method of handling it in order to prevent the further dissemination of the disease and to guard against the danger of its escape to other States. At the time the Federal quarantine was established and the work of repression begun, the disease was spreading very rapidly and new herds were daily becoming affected. After carefully considering the conditions which existed and the enormous loss with which the country was menaced by the spread of the contagion, it was decided to slaughter the diseased and exposed animals as soon as this could be done, and to disinfect thoroughly the buildings in which they had been sheltered. As a basis of compensation to the owners, an agreement was made with the Governor of Massachusetts that the animals would be appraised at their value if in a state of health, and that 70 per cent. of this appraisement would be paid by the Federal Government.

The disease was so easily carried from stable to stable by persons that it was necessary to take special precautions to prevent its spread by the inspectors who must necessarily visit the diseased herds and who must make investigations of suspected herds. To avoid this danger so far as possible, the Federal inspectors were instructed from the very beginning of the campaign, to carry with them rubber caps, coats and boots, which were to be worn while they were in the stables and sponged off with a disinfecting solution before they left the premises. In addition to this it was finally decided that they should also have rubber cloaks which would tie tightly around the neck and reach the ground, by the use of which the entire clothing might be disinfected in a few minutes by generating formalin with a suitable lamp placed under the cloak.

On December 13, 1902, the Federal quarantine was extended to hides, hair, wool, horns and hoofs of susceptible animals in the quarantined States.

Foot-and-mouth disease has appeared so seldom in the United States and the outbreaks have been so small that the great losses which it may cause are not appreciated in this country, simply be-

cause our people have not experienced an outbreak of sufficient magnitude to observe its effects. There has consequently been some surprise expressed that such a radical measure as slaughter was adopted, and there has been an effort to show that the disease is mild and causes only slight losses. The promulgation of such views, even though they were founded upon ignorance of the disease, had the effect of arousing a certain amount of opposition to the work, hindering its progress, and to a certain extent jeopardizing its success. As we have the contagion now in our territory, it is well that our people should understand the losses which are caused by foot-and-mouth disease and the measures which have been found necessary to control it in other countries. In most veterinary text-books we are told that foot-and-mouth disease is a mild affection, that only one or two per cent. of the animals attacked die from it, and the reader is left to infer that the losses do not exceed two or three per cent. of the value of the animals. Such a conclusion, however, would be a very grave mistake.

This disease has been known to the veterinarians and agriculturists of Europe since the time when with advancing medical knowledge, it was possible to discriminate between the different plagues of animals. It has been more or less constantly present in the countries of Europe and has been particularly prevalent on the Continent. Dr. A. C. Cope, Chief Veterinary Officer of the British Board of Agriculture, writing in the year 1900 of its ravages in Great Britain, says: [1]

"The disease was seen and recognized in 1839 and continued with more or less prevalence until 1886. It was reintroduced in 1892, and again appeared in the latter part of 1894. And now after the lapse of an interval of nearly six years the disease has again found its way into this country despite the fact that the importation of animals from all countries in which foot-and-mouth disease was known to exist has been prohibited for a period of eight years."

In Continental Europe the disease became seriously disseminated about 1886 and has continued its ravages until the present, notwithstanding the most stringent regulations.

There have been but a few outbreaks in America, the most extensive one being in 1870, when the contagion was introduced by way of Canada and spread into the New England States and New York. The type of the disease at that time appears to have been mild, and the dissemination of the contagion was quite easily arrested. About 1880 there were two or three lots of animals brought to the United States affected with this disease, but there was no extension from the animals originally affected. In 1884 there was a small outbreak at Portland, Maine, caused by imported cattle, and the disease spread to a few herds outside of the quarantine station. Owing to the small number of animals affected and the limited area of territory covered by the disease, it was easily controlled by the ordinary measures of quarantine and disinfection.

During the many years that the disease has been known in Europe there has been abundant opportunity to study its characters and to become familiar with the losses which it causes, and it may be fairly said that this disease is now dreaded more than any other which affects live stock. Even in the mildest outbreaks, when but one or two per cent. of the grown animals die from it, there are numerous other sources of loss which are much more important than the actual mortality. The fever and the difficulty of masticating the food cause a rapid and extreme loss in flesh and the cessation of the milk secretion. The udders often become inflamed and ruined by the formation of abscesses; the inflammation of the feet may cause the horn to drop from the toes, causing great lameness and permanently injuring the animals; while abortion is frequent with pregnant animals. Altogether this causes a loss of 20 to 30 per cent. of the value of the cattle. The disease generally spreads to sheep and hogs, causing proportionately severe losses with these animals.

The type of the disease varies, however, probably more than with any other malady affecting the domestic animals, and in some outbreaks it is extremely malignant. Fleming[2] said in 1875 that it had been calculated that in recent invasions of the disease in Great Britain the average loss by death in those local-

ities where it was very severe was 10 per cent., and Professor Brown stated that in one dairy in London 16 died out of 86.

Friedberger and Fröhner[3] state that sometimes the character of the disease is so malignant that 5 to 50 per cent. of adult animals die, and 50 to 80 per cent. of the sucklings.

Dr. Cope stated at the International Veterinary Congress at Baden Baden, 1899:[4]

"It is true that foot-and-mouth disease rarely assumes a fatal character, but the fact that nearly all classes of animals on the farm are susceptible, renders the indirect losses much greater in the case of foot-and-mouth than rinderpest or pleuro-pneumonia which only affect cattle. In my country, where it existed for at least 50 years, it has caused enormous loss and inconvenience, greater than that of all the other contagious diseases of animals combined."

He further stated:

"We have now been free from the disease since 1894, and I can assert that at the present time foot-and-mouth disease is more dreaded by the farmers and stock owners of Great Britain than cattle plague, or pleuro-pneumonia, and that they are now willing and ready to put up with any restrictions, of however drastic a character, considered necessary by the central department to stamp it out."

Hafner,[5] of Karlsruhe, gave an equally serious account of the ravages of the disease in Southern Germany. He said foot-and-mouth disease had prevailed almost continually in Germany for a long series of years, and it had caused losses much greater than all other epizoötic diseases combined. It had also been found that the disease, instead of following a benign course as formerly, had during recent years become very malignant. In fact, in numerous sections hundreds of cattle had suddenly died and certain estates had lost from a third to half of their stock.

These observations of men who have studied the disease for years where it has been almost constantly present, show what disastrous losses it causes and what a calamity it would be to a country like the United States to have the contagion spread over the whole extent of our territory. Not only would the immediate losses be tremendous, but the disease might linger

on this continent, as it did in Great Britain, for half a century. To guard against such a calamity the most severe and rigid measures would be justified.

In Europe the disease has usually been combated by isolation and quarantine. But these measures have not been effective, as is shown by the continuous existence and the wide dissemination of the contagion. In considering the question as to whether quarantine would be practicable, it is well to inquire how long animals may spread the disease after they are affected by it. Hess, of Berne, at the Baden Baden Congress of 1899, contributed some observations of great interest in this connection.[6] He said that with 370 cattle affected with foot-and-mouth disease in the autumn of 1898 on the pastures of the Bernese Oberland, 7 of them, or nearly 2 per cent., propagated the disease in the course of the winter. From this he concluded that all cattle which recovered from this disease should be, if possible, held in quarantine for five months, and that the owners of recovered cattle should not introduce new animals in their stables during this period of quarantine.

It has often been observed that cattle with chronic ulcers of the feet disseminate the disease a considerable time after they have apparently recovered; but this observation made by Hess, that recovered animals are only safe after a period of five months, makes the holding of diseased animals for recovery a much more serious matter than has heretofore been suspected. While diseased animals are alive they are constantly giving off the contagion by the saliva which escapes from the mouth, and by the serum and pus which is excreted from the vesicles and ulcers of the udder and feet, and perhaps in other ways. The stables are saturated with the contagion, and all persons or animals that leave such stables carry it with them. When the animals are killed and the carcasses properly disposed of, the multiplication of this contagion ceases, and by ventilation and standing the stables become less and less infected, while if they are thoroughly disinfected with proper chemicals the danger of the disease spreading from them is arrested.

There is probably no disease which is spread more easily, and possibly none which is spread as easily, as foot-and-mouth disease, and it has in many cases been found impossible to stop its spread by quarantine measures. Dammann,[7] of Hanover, at the Baden Baden Congress, said that without an absolute quarantine of the infected farms, preventing even the movement of persons, the control of this disease is not to be thought of, but this measure he says cannot be executed. He further said that the very severe requirements of the sanitary law have not succeeded in eradicating the disease; and notwithstanding the quarantine of the infected stables, reinforced in many States by the quarantine of districts and often of a large zone around these; notwithstanding the very extended prohibition of animal markets and the supervision exercised over the abattoirs, dealers' stables and railroad cars, the disease continued to prevail.

Dr. Loeffler at the same Congress said:[8]

"Foot-and-mouth disease is spreading more and more every year; and every year it costs the German Empire enormous sums. Necessary measures had been taken with the greatest care; suspected grounds had been closely quarantined; this measure had been extended to whole communes and even to entire districts; disinfection has been carefully carried out; and notwithstanding all this, the disease kept spreading."

Cope said that one of the most remarkable features of an outbreak which occurred in England "was the sudden appearance of the disease in Edinburgh, which is 400 miles distant from London, there being no centre between London and that city."[9] Such sudden extensions of the disease, although not to this distance, have been common in all outbreaks and have excited more or less comment and speculation as to how they have occurred. Undoubtedly the contagion may be carried a long distance in the clothing of persons who have been near the animals, and Hecker has proved that the feathers of pigeons which had picked up their food among infected chaff were infectious 12 hours afterwards. He also produced the disease in dogs, cats and rabbits by inoculation.[10] In the Massachusetts

outbreak it has been suspected that the disease was carried in some cases by pigeons and in others by dogs, cats and rats. These observations serve to explain to a certain extent the mysterious transmission of the disease from farm to farm over several miles of intervening territory.

With a contagion which is so easily and frequently carried from farm to farm or from town to town, and in which efforts at control by quarantine have so generally failed, it becomes an important object to lessen the period of existence of the contagion as much as possible by slaughtering the diseased animals. In Europe, slaughter has not usually been attempted because the disease has been so widespread that this would necessitate the destruction of nearly the entire stock of cattle. However, slaughter has been frequently resorted to, and sometimes with marked success.

This disease was at one time taken to Australia. Fleming says:[11] "There was really only one outbreak in Victoria among the cattle on two farms, into which it had been introduced by an imported bull. These cattle were destroyed, and with them the disease."

Dr. Cope refers to a communication which he received from Dr. Bang, of Copenhagen, in which the latter says:[12] "Since 1876 we have had every year, once or twice, a case of foot-and-mouth disease. In all cases we killed the cattle, sheep and swine on the farms even if only one calf was attacked."

Hess, of Berne, at the Baden Baden Congress, gave as one of his conclusions that the most efficacious and most economical measure to adopt against foot-and-mouth disease in most cases consists in the slaughter of all the infected animals. "The diseased animals," he said, "should be destroyed completely, including the hides and hair; and the exposed slaughtered under police supervision."[13]

In England slaughter has been resorted to quite frequently in recent years to stamp out the disease when first introduced. Cope, speaking of an outbreak in that country, says: "It was eventually stamped out in the County of Kent by the purchase,

slaughter and burial of several of the affected flocks." Again he said: "Later in the year when the outbreaks were still further reduced in number, the Privy Council urged and succeeded in inducing some of the local authorities to stamp out the centre of disease, by slaughtering all the animals on the premises." With reference to the measures adopted he said: "Speaking generally, it may be said that the latter consisted of the maintenance of strict isolation of all centres of the disease, disinfection of all persons and substances moved out of infected places, and sometimes the slaughter of whole herds of cattle and flocks of sheep."[14]

In his report for 1900 Dr. Cope said, referring to five outbreaks in the County of Norfolk: "In all these instances the whole of the animals of the farms were slaughtered immediately after the nature of the disease had been confirmed." Further in the same report he said: "After the lapse of six weeks the disease reappeared in the month of September as far south as Melksham in Wilts. In this instance it spread from the first centre to two neighboring farms. * * * The slaughter of all the cattle, sheep and swine on the farms was immediately adopted and since that date no further cases have been discovered in the west of England. On October 5th a centre was detected in the County of Stafford. * * * The herd was killed as rapidly as possible. * * * Other outbreaks of foot-and-mouth disease were detected in Essex, in the immediate neighborhood of the former, on December 13th, 15th and 18th. Slaughter of all the animals on these farms was again rigorously enforced, but before it could be carried out 19 cattle on one farm and 14 on another, fell with the disease."[15]

The report of the Assistant Secretary of the Animals Division of the British Board of Agriculture for 1900 shows that slaughter of the animals was resorted to in 21 out of the 24 outbreaks of foot-and-mouth disease occurring in Great Britain during that year. [6]

Dr. Cope says in his report for 1901:[17] "On the 27th of January, 1901, a report was received of a suspected outbreak

near Ipswich. * * * All the cattle on the farm were slaughtered with the utmost speed as soon as the nature of the disease had been confirmed." Again he says:

"The more recent experience in the administration of the foot-and-mouth disease order of the Board has gone to prove that under the new system of stopping the movement of stock in widely extended areas, and of slaughtering in every instance where isolation cannot be effectually carried out, a general outbreak of the disease can with certainty be arrested. This view is, I think, established by the fact that although the several centres discovered in 1900-01 were very widely distributed in England and Wales, the measures adopted were so effectual that not a single case of foot-and-mouth disease found its way into a market, railway pen or truck, or into yards and lairs where animals are so frequently congregated by dealers prior to movement."

These quotations are sufficient to show that the slaughter of diseased animals has been frequently adopted as a means of combating the disease in Europe, and that it has been more successful than any other measures. In fact, the International Veterinary Congress held at Baden Baden in 1899, stated in one of its resolutions passed with reference to this disease, that it was necessary to authorize slaughter and to establish uniform sanitary regulations.[18] It is plain that in Europe the failure of efforts to control the disease by quarantine and isolation is recognized and that the slaughter of diseased animals is looked upon as the most efficacious measure that can be adopted. The disease has frequently been stamped out by this method when it has first been introduced into a country. If slaughter is justified and recommended in Europe, where the disease so frequently occurs and is so prevalent, how much more is it to be recommended in a country like the United States where it is confined to a very small territory and where there is such an enormous number of animals to be affected by it, if it spreads beyond control.

There is no disease in which different outbreaks vary more in their virulence than foot-and-mouth disease. In some outbreaks the cattle suffer but little, scarcely an animal dies, and the contagion spreads very slowly or dies out in a short time. In other outbreaks 50 per cent. of the cattle may die, the disease

is very contagious and spreads rapidly, and the contagion is carried long distances in the clothing of persons and in the hair of animals. The present outbreak in the New England States has been a very virulent one. The disease has spread with extreme facility and has affected all of the cattle in the infected herds within a very few days, while the fever has been very high, the loss of flesh extreme, and the after results very unfavorable. In Massachusetts a number of herds were preserved which had the disease in a mild form and which had apparently recovered at the time the inspection was made. In about one-third of these cases the owners afterwards came in with the statement that a relapse had occurred with their animals, some were again affected with the formation of vesicles, and most of the others had abscesses in the udders which made them unfit for milk production. At the time these cattle were slaughtered the udders of many of them were so distended with pus that they were ruptured as the animals fell, and discharged vast quantities of this liquid, showing that they had been practically converted into sacs of pus.

The following tables show the number of herds and animals affected and the number slaughtered, by States, up to March 1, 1903:

Cattle Affected Since Beginning of Outbreak.

	Herds	Cattle.
Massachusetts	149	2,956
Vermont	22	351
Rhode Island	17	367
New Hampshire	4	37
Total	192	3,711

Animals Slaughtered by U. S. Department of Agriculture.

	Herds.	Cattle.	Swine.	Sheep and Goats.	Total Animals.
Massachusetts	119	2,611	220	54	2,885
Vermont	22	351	55	74	480
Rhode Island	6	80	8	—	88
New Hampshire	4	37	—	—	37
Total	151	3,079	283	128	3,490

The difference between the number of cattle affected, 3,711,

and the number slaughtered, 3,079, represents those that either died or recovered. Nearly all the recoveries were among the early cases where the disease had run its course before the work of slaughtering was begun or before the herds could be reached.

The compensation paid by the Federal Government for cattle slaughtered up to March 1, was $103,335.75, and for other animals $2,654.47, making a total of $105,990.22. The average prices paid per head for the different kinds of animals were as follows: Adult cattle, $34.92; calves, $7.57; all cattle, $33.56; swine, $7.15; sheep and goats, $4.89.

By the first of February all the affected animals had been destroyed, so far as then known, excepting the recovered cases above mentioned. Since that time, however, there have been a few more outbreaks, most of them in Massachusetts in a district south of Boston. On March 6 the disease was discovered among a lot of 11 cattle received at Watertown, Mass., from New Hampshire, and an investigation at the place of origin, disclosed four more diseased herds containing 63 cattle. In all these cases the diseased and exposed animals were promptly slaughtered and the premises thoroughly disinfected. These recent cases increase the total number of affected herds to 197, containing 3,785 cattle, and the number of cattle slaughtered to 3,153.

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16. *Ibid.*, pp. 25–28.
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NEW JERSEY'S LAW PUT TO TEST.—The first case tried under New Jersey's new law (Chapter 18, Laws 1902) resulted in a conviction of the defendant. R. R. Sample was arrested, and indicted by the January Grand Jury of Monmouth County for practicing veterinary medicine in violation of the law. He was tried, convicted, and fined $100, which with costs brought the amount up to $140. Being unable to pay the fine and costs, he was sent to the Freehold jail. This conviction demonstrates the strength of the law, and stands as a warning to all who dare to violate it. Drs. Height, of Asbury Park, and Clark, of Long Branch, were the men who pushed the case and made possible the result recorded.

THE VETERINARY MEDICAL ASSOCIATION OF NEW JERSEY has kept a watchful eye upon legislation at Trenton to prevent the passage of bills intended to break the integrity of its hard-earned statute. The wisdom of this course was demonstrated when Assembly Bill No. 212 made its appearance, for it provided for the re-opening of the registry books of the State for a period of three months to admit all who would make satisfactory affidavits. This bill was put to sleep in committee in short order. Then Assembly Bill No. 125 (amendment to Act of 1894 regulating medical practice) was investigated, with the result that the introducer withdrew it on account of objectionable features affecting the veterinary and other allied professions. In place of this Assembly Bill 272, further safeguarding the veterinary profession, was favorably reported by the Committee.

ROUP.

By Prof. F. C. Harrison and Mr. H. Streit.

Bacteriological Department of the Ontario Agricultural College and Experiment Station.

The most widely spread and destructive disease affecting domestic fowls in Ontario, and perhaps in Canada, is commonly known as *roup*, canker, or distemper. By some the disease is called cancer of the mouth, throat, etc., or even by the name of fowl diphtheria; but all these different names are given to the same disease, according as some particular symptom is more or less prominent.

Economic Importance.—The economic importance of this disease is very great, as it is probably one of the greatest hindrances in the poultry business. The direct losses from the disease vary greatly in different epidemics. Thus, in a virulent outbreak, there may be many deaths in a short time; while in another, a flock may become infected and only a few birds die. Of much greater importance are the indirect losses; and these are apt to be overlooked by farmers or those who keep only a few fowl and pay but little attention to them. The diseased birds recover very slowly; and they remain thin, anæmic, and unfit for egg production, fattening, or breeding,—eating just as much as if they were normal and living at the expense of their keeper.

GENERAL CONDITION OF ROUPY BIRDS.

The general condition of roupy birds varies very much. After the first symptom of the disease, which is usually a putrid catarrh from the nostrils, the affected fowl is generally restless, separates from other members of the flock, becomes dull, cowers in the corner of the coop, or mopes in the corner of the pen, with its head drawn close to its body and often covered with its wings.

If there is a severe discharge from the nostrils or eyes, then the feathers upon the wings or back are likely to be smeared with it, stick together, and after some time fall out; and the

eyes are often shut, the lids being glued together by the sticky discharge from them.

A fowl in a sleepy condition, or moping as described, frequently rouses itself for a time, takes food, and especially water, and then gradually returns to the apathetic condition.

Many fowls having the disease in a chronic form keep their normal appetite for a long time, and seem very little disturbed physically ; whilst others, especially when the face or eyes become swollen, lose their appetite, grow thinner and thinner, and finally become too weak to stand or walk around, when they lie down and die in a few days. During the last stage, diarrhœa, with offensive yellow or green discharge, often sets in and causes death in a short time.

Many poultry keepers assert that roupy birds show fever ; and it is certain that the head is very often hot, but the body temperature is normal, or only very slightly higher than normal.

SPECIAL SYMPTOMS OF ROUP.

By the term roup we generally understand a more or less putrid discharge from the nostrils, which lasts for weeks or even months. The disease often follows a common cold, to which fowls, especially young fowls and those of the more delicate breeds, are much predisposed.

In the first stages of roup, the birds often cough or sneeze, and the breathing is noisy, caused by the partial closing of the air passages, which become blocked with the discharge from the nostrils. When the air passages are entirely closed by the discharged products, the fowl has to open its beak in order to breathe.

Sometimes a yellowish, cheese-like mass forms in the nostrils, growing quickly and pressing the upper walls of the nose upwards ; and if this mass is removed, an uneven bleeding surface is left, which forms a new cheesy mass in from 24 to 48 hours.

Whilst many roupy birds show only the above mentioned symptoms, others become more seriously diseased. The face of

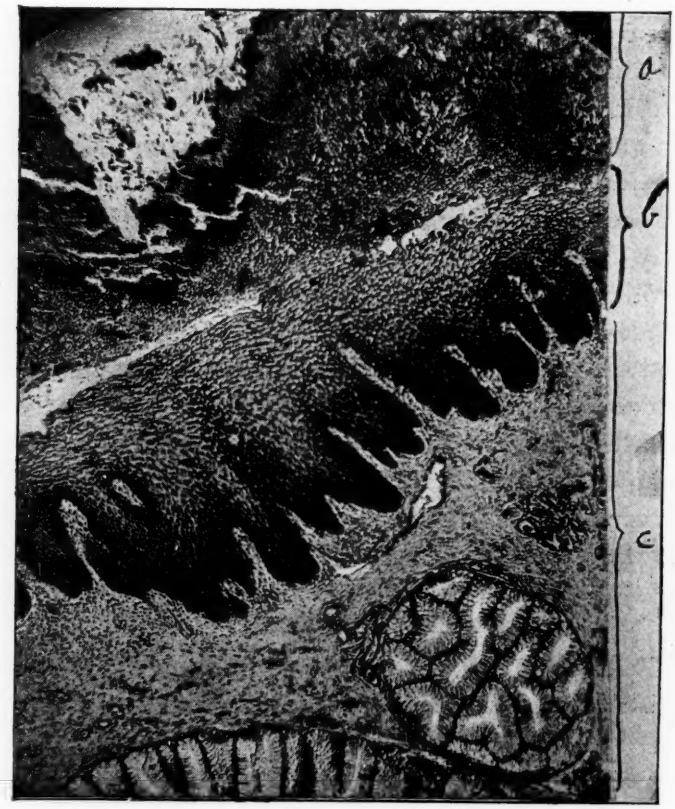


FIG. 1.—A section of false membrane of a roupy fowl. *a* False membrance. *b* Epithelium. *c* Submucosa.

roupy birds is very often swollen, especially between the eyes and the nostrils ; and this swelling, which is hot and sore, sometimes grows into a tumor as large as a walnut, generally firm and hard. A bird in this condition is frequently found scratching at the tumor with its claws or wings, as if endeavoring to remove it. If the tumor grows on the inner side, towards the nasal passage, it forces the roof of the mouth downwards, and the upper and lower beak are slowly pressed out of their normal position, so that the bird cannot close its mouth.

On making an incision into the tumor, we find a solid, cheesy, yellowish matter, which may be pulled out like the root

of a plant; but it usually has to be broken into small pieces in order to get it out. Around this mass, there is a more or less smooth, grey or brownish membrane that is capable of again forming a cheesy mass similar to what has been removed.

The mass itself, when not attended to, often grows into the nasal canals, and blocks them up completely. Generally, combined with the formation of the tumor on the face, there is an affection of the eyes; or the eyes become diseased without the preliminary discharge from the nose, in which case poultry keepers speak of fowls as suffering from "Roup of the Eyes."

Roup of the Eyes.—The first symptom of the eyes is generally an inflammation of the eyelids. These become red, swollen, and hot; then the mucous membrane and glands of the eyes become inflamed and begin to secrete a liquid, at first clear, and then of a grey, slimy, putrid character. Occasionally, the mucous membrane of the eye socket is the primary seat of the infection of the eye, and the eyelids swell as a secondary symptom. It is easy to understand that the eyes may become infected from the nasal cavity, as the eye socket has free connection, by means of the lachrymal canal, with the nasal cavity, and thus the diseased products from the nostrils can pass into the eye sockets.



FIG. 2.—Section of a false membrane (portion of (*a*) FIG. 1, (more highly magnified) showing pus cells (*p*), fibrous exudate (*f*) and bacilli (*b*).

The secretion from the eyes is similar to that described as coming from the nostrils, *i. e.*, at first a clear liquid, then changing to a putrid grey and offensive discharge, which dries on the feathers at the side of the head, causing them to stick together or fall out. If the secretion is retained in the eye socket, it undergoes a change, becoming a yellowish, solid, cheesy mass of the same appearance as that found in the nasal tumor. This cheesy mass either forces the eye out of its socket, or the inflammation entirely destroys it. These cheese-like masses form in one or two days, and may reappear after many daily removals.

All these affections, described above, may be localized on one side; but often both nasal passages and both eyes are affected at the same time.

Combined with the symptoms of roup above described, there often are patches of a greyish yellow exudation firmly adherent to the mouth, throat, etc. These patches are called "false membranes"; and on account of their somewhat close resemblance to the membrane which is formed in human diphtheria, it has been thought by some writers that the avian and human diseases are the same. Here, however, let it suffice to say that the weight of evidence is against this contention; but this phase of the subject will be more fully dealt with later on in this bulletin.

We may also point out that many poultry keepers who notice the false membrane on the throat and mouth of their fowls, regard the disease as quite different from the catarrhal form, and call it "canker," which is probably a popular form of the word "cancer."

Whether the disease is characterized by false membranes, offensive discharge, or cheesy masses, the cause is the same, as we have many times experimentally demonstrated.

At one or several places in the mouth or throat, these yellowish, smooth or uneven membranes appear, and either remain small and disappear after a few days, or grow thicker, spread, and become firmly attached to the mucous membrane; and if they (the false membranes) are removed, an uneven, bleeding surface is exposed, which looks like a true cancer.

After the appearance of the membranes, the adjacent submucous tissue sometimes becomes inflamed, and finally the growths are found to be similar to those so often seen at the side of the face, containing solid cheesy matter in the centre.

When the throat is blocked by these false membranes, the animal's breathing becomes abnormal, and the air passing through the throat produces loud noises. Gradually, the visible mucous membrane and the comb turn blue, and the fowl finally dies from suffocation.

The symptoms are much the same when the lungs are the seat of the disease. In dead roupy fowls we have often found the higher bronchial tubes completely filled with solid cheesy matter, which prevented the air from passing into the lungs.

Occasionally cheesy matters are found in the folds of the pleura, and in other situations.

THE COURSE OF THE DISEASE.

The course of roup is usually of long duration. A simple, putrid discharge from the nose may stop in three or four weeks, and similarly false membranes may soon disappear; but generally the symptoms last for months. When the eyelids become swollen and and tumors appear, the case is usually chronic. Affected birds may be better for a few days or weeks, and then become very weak again. Damp, cold weather usually intensifies the disease.

It is well known that fowls may be more or less sick from roup for one or even several years; and these birds should have the greatest care and attention, for they are generally the cause of new outbreaks. Once introduced, roup may remain in a flock for many years. The first cold and moist nights of the fall and early winter cause all kinds of catarrhs, which in many instances are followed by roup. Roup spreads rapidly in the winter time, and may attack from 10 to 90 per cent. of the fowls in a flock. Towards spring, the disease gradually disappears; during the summer months, a few birds remain chronically affected; and then the first cold nights give the disease a fresh start.



FIG. 3.—Pigeon (No. 6) thirteen days after inoculation with the roup bacillus and two days before death.

Young fowls and fowls of the fine breeds are especially liable to roup. While some poultry men maintain that birds once having suffered from roup never take the disease again, most of the experimental evidence tends to show that no acquired immunity exists, as sometimes happens after other diseases. Some fowls are, however, naturally immune, and never take the disease. In the course of our own experiments, a white chicken which had never had roup, was inoculated with repeated and large doses of the roup germ, but without effect.

THE CAUSE OF THE DISEASE.

Many opinions have been expressed as to the cause of the disease; and some of these have been based on scientific research, while others have been mere guesses. Some writers have thought that the disease is due to "Protozoa," a low form of animal life; and others have isolated various bacteria from the diseased tissues, which bacteria when grown in pure culture and introduced into healthy hens, have produced symptoms of the disease.

As roup, especially when located in the mouth or throat, resembles *human diphtheria*, it has been claimed that the well-known organism of this disease, the *Bacillus diphtheriæ* of Klebs-

Loeffler, is the cause of roup, or as it is termed by some, "fowl diphtheria."

Statements have been made by European writers that outbreaks of diphtheria occurred in men, while at the same time poultry kept in the buildings in which the men lived were suffering from roup. They, however, do not state whether the roup commenced before the diphtheria or *vice versa*, and they give no good reasons for supposing that the outbreaks were actually connected with each other. In fact, we must state that the cases referred to, of alleged transmission of chicken diphtheria to man, are on examination found to be mere assumption, due to ignorance of veterinary pathology.

In 1898, several articles appeared in the Agricultural Press, written by H. A. Stevenson, M. D., who said, "Roup is caused by a specific germ, which appears to me to be identical with the Klebs-Loeffler bacillus," *i. e.*, the bacillus which causes human diphtheria; and in another place, he says, "I believe roup and canker to be the same disease, a disease identical with diphtheria in man."

If the above statements were borne out by experiments, and found to be correct, we should have to demand the most rigorous treatment of diseased birds; for Dr. Stevenson takes the position that diphtheria may be spread by roupy birds in exactly the same manner as tuberculosis is supposed to be spread by tubercular cattle.

These statements of Stevenson are, however, not based on careful experiments, and the *human* diphtheria antitoxin which he recommended as a sure cure for roup, has been found to be absolutely worthless for that purpose.

The following experiments and observations may be cited under this head:

A student of Professor Tresbot's devoured diphtheritic membrane from fowls without contracting the disease; and Löffler, the discoverer of the human diphtheria germ, and Colin were never able to produce diphtheria in fowls by inoculation with human diphtheria germs. Gratia and Lieneaux treated roupy

fowls with the human diphtheria antitoxin, and secured very poor results.

We have also ourselves made a large number of experiments with roupy fowls; and in about 300 roupy birds that have come under our observation, we have never been able to isolate the Klebs-Loeffler bacillus, *i. e.*, the bacillus of human diphtheria. Roupy fowls have also been again and again treated with diphtheria antitoxin without any result. Were the germs of human diphtheria and fowl diphtheria the same, the antitoxin would certainly have affected the diphtheria in the fowl, since it is the best known remedy for diphtheria in man.

Further, we find that the diphtheritic membranes in man and fowls are different. That of the former consists of a fibrinous exudation,—granular material, pus corpuscles, and débris of epithelial cells,—and contains the Klebs-Loeffler bacillus in great numbers: and these can readily be stained by Gram's method.

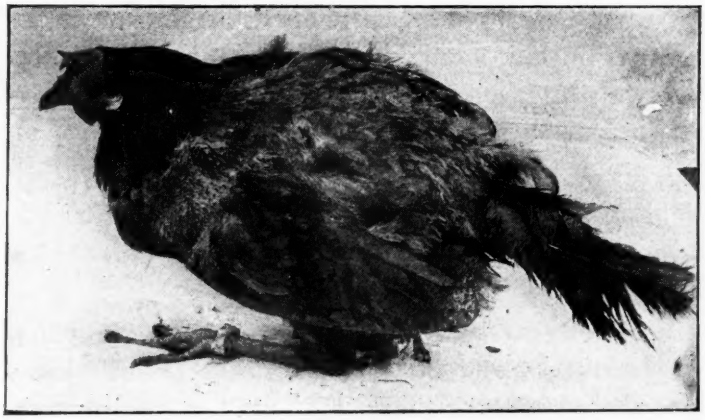


FIG. 4.—Hen 47; sixty-seven days after inoculation with B. pyocyaneus and the day before death.

The membrane from fowls consists almost entirely of pus cells, some granular masses, débris of epithelial cells (especially swollen nuclei of these), and bacteria; but amongst the bacteria, we seldom find one that can be stained by Gram's method.

Roupy fowls never show any of the symptoms caused by the bacterial toxin (poison secreted by bacteria), which always follow an affection with the true diphtheria bacillus.

Hence we are bound to conclude, from the evidence here presented, and from other evidence we have at hand but which space alone prevents us from presenting, that *Stevenson's theory is untenable, and that fowl diphtheria is never caused by the human diphtheria germ*,—the Klebs-Loeffler bacillus.

RESULTS OF WORK AT COLLEGE.

In the present bulletin, only a brief summary of our work with roupy birds can be given. Any one wishing the full details of the experimental work may obtain them by writing to the College for the full report.

The first experiments were conducted, to find out *whether or not Roup was an infectious disease;* and, for this purpose, 10 healthy fowls which had never been exposed to infection, were confined in a cage with diseased birds; and after varying periods of time, five of the healthy fowls caught the disease. Fourteen healthy birds were then treated by rubbing a portion of the false membrane, or putrid nasal discharge from roupy birds, upon the normal, or slightly scratched, mucous membrane of the nose or eyes; and in this way, two birds were infected with typical roup.

These experiments, therefore, show the infectious nature of the disease; but the degree of infectiousness was not large. We must, however, remember that when fowls are kept under natural conditions where they are subject to cold, etc., the infectiousness may be much increased.

Having thus shown that roup is infectious, the next step was to isolate the causal microörganism, a task of some difficulty, on account of the fact that the discharge from the nose, the false membrane, etc., is in close contact with and likely to be contaminated by the air and food, which always contain large numbers of bacteria that find suitable material and favorable temperature for growth in the albuminous secretions of fowl.

Very many bacteria were isolated, but when inoculated into healthy chickens, they proved to be harmless.

In other infections, such as fowl cholera, etc., it is comparatively easy to isolate the causal organism, because it is found in



FIG. 5.—Head of hen 35; eight days after infection with a culture of the roup bacillus—*a*, cheesy matter.

the blood and organs of the diseased fowl; but in roup we find that, as a rule, the organs and blood are free from bacteria, or else if bacteria are present, they are harmless.

Without giving the results of a long-continued series of fruitless examinations and experiments, made within the last four years, we may say that at length we have isolated a germ which causes roup, with all its varied symptoms. To this germ we have given the name *Bacillus cacosmus* (ill-smelling), and shall refer to it as the "roup bacillus." A technical description of the germ will be given in a more scientific paper at a later date.

Chronic diseases, of which we have an excellent example in roup, are notoriously hard to reproduce by the inoculation of healthy animals, because in most cases of sickness there must be not only *the causal organism*, but a lowering of the vital forces; and, to get over the difficulty, we used pigeons, which are easily infected, to increase the virulence of the causal organism and thereby assist in the infection of hens. In this way, we produced roup in hens at pleasure by inoculation with the roup bacillus, taken from roupy pigeons.



FIG. 6.—Head of fowl 36; twenty-two days after inoculation with a culture of the roup bacillus—*a*, false membrane.

The "roup bacillus" tends to penetrate the deeper layers of the mucous membranes or submucous tissues. Hence cultures made from swabs taken from the false membranes very rarely contain the "roup bacillus," because the bacilli are retained in the depths of the animal tissue.

The "roup bacillus" is especially difficult to isolate in cases in which the bird has had the disease for a long time, as the tumors and false membranes contain very many other kinds of bacteria in large numbers. In our experiments, even when roup was produced in healthy fowl by inoculation with pure cultures of the "roup bacillus," the mucous discharge from the very beginning contained many kinds of bacteria.

The roup germs seem capable of remaining in a sort of dormant condition in the depths of the tissues for a long time,—so long that the fowls sometimes appear convalescent; but, suddenly, when the constitution is weakened by a cold or other causes, the roup germs become active and the roupy symptoms reappear.

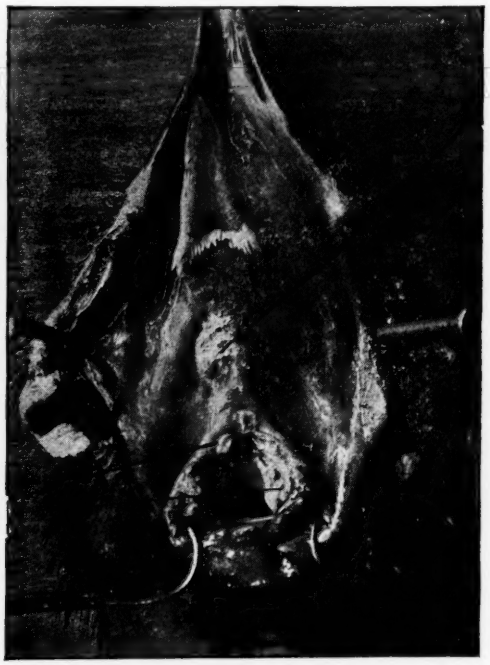


FIG. 7.—Fowl 46; throat and bottom of the mouth with false membrane (*m*), fourteen days after inoculation with B. pyocyaneus.

We have also found that roup, with all its varying symptoms, can be produced by the inoculation of healthy hens with the well-known *Bacillus pyocyaneus*, or green pus germ, which we have frequently isolated from roupy birds. Hence, it would seem that roup is simply a complex suppurative process; but, different from ordinary forms of suppuration, the pus in fowls appears in the form of a half or entirely solid, cheese-like, yellowish white mass, without any tendency to become soft or liquid, or to perforate the surrounding skin.

This may be proved by the injection of sterile turpentine (oil) into the eye-lids, which gives rise to inflammation and the formation of a solid cheese-like matter in the depth of the tumor.

Therefore, the cheesy masses must be regarded as pus.

To sum up, roup, or fowl diphtheria, canker, etc., is a com-

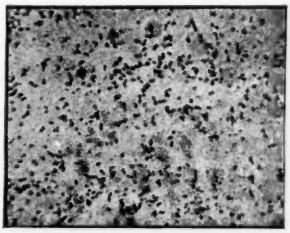


FIG. 8.—The Roup bacillus (B. cacosmus), from a twenty-four hour old agar culture.

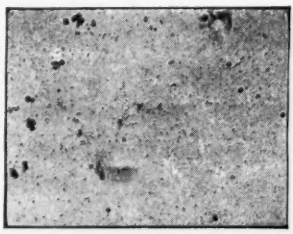


FIG. 9.—The Roup bacillus showing the flagella (organs of locomotion). Van Ermegem's method.

plex of suppurative processes, taking place especially in the head of fowls. This suppuration may be caused by different species of bacteria, and these may be very wide spread (*e.g.* Pyocyaneus), and thus an outbreak of roup may occur in a flock living in unsanitary conditions, without any previous introduction of the germs from elsewhere; but certainly this is the exception. More often, the disease is spread by sick fowls introduced into healthy flocks. Germs generally are spread throughout a yard by means of the secretions, although these do not always contain the causal organism. The infected fowls are not very much different in their general appearance and condition at the beginning of the disease, and thus they often take food and water for a long time, contaminating the food troughs and cups. As the germs cannot infect fowls so long as the mucous membranes are intact and healthy, the disease does not spread for a certain length of time, although the germs may be present almost everywhere in the yard. Then comes a change of weather, such as a cold night or the beginning of fall and winter, and suddenly the infectiousness of the disease is increased and roup spreads rapidly among the birds. Unfavorable weather, which causes colds and other infections of the mucous membranes, directly opens the way for infection. But it is possible that the roup bacilli having infected a number of fowls, may gain so much in virulence as to be capable of entering into the tissues of the fowl without previous colds. Like colds, other circumstances which weaken the constitution of the fowls, such as unsuitable feed or feeding, unhygienic yards, bad water

supply, etc., contribute towards the spread of the disease. Once present in a poultry yard, the roup-causing bacilli cannot be got rid of, unless by very careful disinfection ; and this is valueless so long as any of the fowls are diseased ; and, as we have already stated, fowls often remain affected with roup, carrying the germs in a semi-dormant state, for months or years.



FIG. 10.—Showing method of treatment of roupy birds by immersion of the head in one to two per cent. solution of potassium permanganate.

It is possible that just one kind of bacillus, for example, our "roup bacillus," causes an outbreak of roup ; or an outbreak may be caused, as here at the Ontario Agricultural College, by several species.

TREATMENT AND PREVENTIVES.

As roup is not a specific infectious disease, that is, a disease caused by a single species of germ, it is almost impossible to prepare a preventive or curative serum. Hence this method of treating infectious diseases cannot be used in roup ; and besides it would be very costly.

The germs of roup are not very resistent ; they can easily be destroyed when present in cultures, or somewhere outside the animal ; but in the animal tissue they are very difficult to kill, because they penetrate into the tissue ; and unless this too is killed, the germs continue living for a long time.

Roup may be cured by remedies, if the treatment is careful and judicious. Obstinately reappearing false membranes can be successfully treated by burning the diseased tissue with a

strong acid (hydrochloric acid 50% to 75%), or other caustics, such as silver nitrate. If the eyes and nose are attacked, they have to be carefully washed, at least twice a day, with an antiseptic solution, such as 2% boracic acid in a decoction of chamomile flowers, or ½% solution of corrosive sublimate. Thus the microörganisms are killed, or, at least, the diseased products which are discharged are removed, and the irritation caused by them; also the transformation into large cheesy masses is prevented.

We had chickens badly affected with roup of the eyes, which were cured with boracic acid and chamomile. On account of the smallness of the nostrils and nasal canals, it is very difficult to get the antiseptic solutions into the nose and nose cavities; but it can be done with a small syringe. If this treatment is too troublesome, then the nostrils, at least, should be washed and opened several times a day, to allow the secretions to pass away. We have treated chickens for 14 days by daily washing with a 2½% solution of creolin and glycerine. After the washings, small plugs of cotton wool, filled with the mixture, were placed in the nostrils and lachrymal ducts. This remedy did not cure the roup in the head, although the same mixture readily kills the roup bacillus in cultures in from 2 to 3 minutes. The greatest hindrance to a sure cure by remedies which have to be used locally, is the ability of the germ to penetrate into the tissue and the many secondary cavities of the nostrils which cannot be reached by the antiseptics. Another method of treatment which gives excellent results, especially in the earlier stages of roup, is the use of a 1 to 2% of permanganate of potash. Fowls are treated in the following manner:—The nostrils are pressed together between thumb and forefinger in the direction of the beak two or three times. Pressure should also be applied between nostrils and eyes in an upward direction. This massage helps to loosen the discharge in the nostrils and eyes. The bird's head is then plunged into the solution of permanganate of potash for twenty or thirty seconds (see Fig. 10), in fact the head may be kept under the solution as long as the bird can tolerate it. The solution is thus distributed through the

nostrils and other canals and has an astringent and slight disinfecting action. This treatment should be given twice a day and continued until all symptoms have disappeared.

If there are solid tumors in the eyelids, they should be opened so that the skin may bleed freely. The cheesy matter should be removed, and the surrounding membrane touched with a 5% carbolic acid, or silver nitrate solution, and then a cotton plug filled with some antiseptic solution put into the cavity. The cavity has to be washed out daily with an antiseptic mixture, and a fresh cotton plug put in again to prevent the cavity from healing too quickly. We have cured chickens in this way in about a fortnight.

As all these methods of treatment demand a great deal of time and care, they cannot well be used for whole flocks, but the more valuable fowls may be treated in this manner.

Food remedies influence roup only by strengthening the fowls and assisting nature to throw off or conquer the disease.

As in other infectious diseases, the most important thing is to prevent an outbreak, or to suppress it as soon as possible. All diseased fowls should be separated from the healthy ones; and the healthy ones should be examined daily, with a view to isolate newly affected birds. After the isolation of the diseased birds, the poultry yard should be disinfected thoroughly with a 5% solution of carbolic acid, followed by a careful white-washing of the walls, etc. Slightly diseased fowls, or any of special value, can be cured, if much care be taken. Less valuable birds, which it will not pay to treat, should be killed as soon as manifest symptoms of the disease appear, especially when the face becomes swollen. These fowls, unless the best care is taken, will remain diseased for months, or perhaps years, and give rise to fresh outbreaks whenever an unfavorable season (with much wet, cold weather) occurs.

The most effective preventive for roup is, to keep fowls in good sanitary conditions,—in dry, roomy yards, and dry, clean, airy houses which are free from draughts and can easily be cleaned and disinfected.

VETERINARY DENTISTRY.

By Robert W. Ellis, D. V. S., New York.

Read before the 12th Annual Meeting of the New York State Veterinary Medical Society, September, 1902.

Solomon, I think it is, who is credited with having said, "there is nothing new under the sun." Whether this be true or not, we are daily forced to look at old things from new view points, and in this paper I am endeavoring to view "veterinary dentistry" from a different point of view from the one which, it seems to me most of us view it. We have regarded it too much, I fear, as something that needs no especial attention from us as veterinary practitioners, beyond the point of "fixing a horse's mouth" when called upon to do so, by coachman or trainer; and solely because they ask us to do so, not, as in other operations, because we decide that it is the thing to be done, after an examination of the subject. The cause, I think, for the suggestion to operate upon the teeth, usually emanating from the source mentioned, instead of (as it should be) from the practitioner, is because we do not pay a sufficient amount of attention to the horse's mouth. The result of this inattention on our part has made this particular branch of veterinary surgery a prey to empiricism, and a menace to our practice laws, in states where they exist. Having thus tried to establish what seems to me a fair justification for introducing this topic and engaging your interest, I will say, from Solomon's view point, that I am not attempting to teach the members of this Association anything new, but simply wish to review with you briefly an old subject, which impresses me with greater importance as I look into it the more closely, with the hope of provoking a discussion and learning something therefrom. Leaving aside the structure of the teeth and all tedious minutiæ (data upon which is as accessible to all present as it is to me and its repetition here tiresome), let us at once proceed to briefly review the horse's mouth, relative to his teeth in a normal state, before touching upon the abnormalities, which it is my purpose to show would either not ex-

ist or be present in a much modified form if we did our duty at all times in regard to making examinations of the horse's mouth. I will endeavor to qualify this statement at another point in this paper. The number of teeth ranges from thirty-six to forty-four, forty being the number usually considered normal and regular in the horse; consisting of twenty-four molars, twelve incisors, and four tusks or canine teeth, commonly called bridle teeth. The absence of the four last named being considered regular and normal in the mare, makes her total thirty-six. These teeth, however, are sometimes present in the mare as she advances in age. In either sex we may find in addition to those already mentioned, four additional supplementary premolars or vestigials. Their situation, when present, being directly in front of the first premolar, in both the upper and lower jaws. Their existence, however, is irregular, occurring quite frequently in the upper jaw, but not regularly, and very infrequently in the lower jaw. I have seen but one mouth in which the vestigial premolar was present in the lower as well as the upper jaw. In this case it was present on one side only, in the lower jaw; and I have every reason to believe that their existence in the lower jaw is extremely rare. Discussion may throw some light on it. Just why the vestigial premolars, as we find them in the horse, are an irregular condition, existing in some subjects and not in others, I am not prepared to state positively. One theory is advanced, that they do exist regularly, prior to the replacing of the "milk-teeth" by the permanent teeth, they forming number four of the first set, and are in most instances crowded out by the permanent teeth, but occasionally being retained. Hence we find them as an irregular condition. I am inclined to accept this theory. Especially as we notice that other animals, carnivora, swine, etc., have four premolars instead of three, making seven in all in each jaw, instead of six, as in the horse. Indeed, naturalists insist upon four premolars in the horse, counting the vestigials as the first, and what we call the first, they term the second premolar, because if the vestigial does not exist, they contend that it has been crowded out with the shedding of the

milk-teeth. A condition which might readily occur, when we take into consideration that the premolars in the horse are vastly different from those in other species of animals, in that in the case of the horse they are the largest teeth in the whole row, in contradistinction to other animals, including man, in which they are somewhat insignificant as compared with those succeeding them. Dame Nature seems to have concluded that the character of the horse's food demands that he have three good stout premolars, rather than four indifferent ones. The fourth one remaining only as a trace (as its name implies) of a tooth which possibly was developed in the pre-historic horse. Not infrequently in the horse we find the last molar to be the smallest in the row, especially in the lower jaw, a contrary condition to that of the carnivora, and man. The molars of the lower jaw in the horse are, approximately, about two-thirds the width of those of the upper jaw. There is also considerable disparity in the width of the two jaws; the upper being that much wider than the lower jaw, that when the mouth is closed, so that the upper and lower incisors sit squarely over each other, the lower molars do not cover more than about an eighth of an inch on each side of the inner border of the upper molars. The amount is not the same over the entire length, however, varying with the degree of curvature of the upper jaw, so that the horse can only grind on one side of the jaws at one time, during which the incisors are not at all in contact. In a normal mouth the grinding surfaces of the lower molars should bevel slightly from above to below, and from within outward, and the opposite condition exist in the upper molars; and there should be nothing exist either on the grinding surfaces or on their borders to prevent them from passing over the full width of their wearing plate while in contact over their entire length. Any condition other than this is abnormal. Following are some examples: First, and the most common condition that we meet are sharp spiculæ which result from the extremities of the rib-like folds on the outer surfaces of the teeth being gradually drawn out to sharp points by the two beveled plates passing over each other during the pro-

cess of grinding the food, the harder materials in the tooth formation persisting, while the less hard wear away. These spiculæ, if not removed, lacerate the inner sides of the cheeks as a result of pressure from without, by the cheek-pieces of the bridle; and themselves become the cause of further trouble by preventing the two plates of the upper and lower jaws from passing completely over each other; thus restricting the grinding surface. This in turn causes these "spiculæ," small and comparatively innocent at first, by lack of contact with opposing surfaces, to increase in length, and continue to more materially interfere with the proper mastication of food. And as they increase in length, their base also becomes broader, and they continue to restrict more and more the lateral movements (diduction) which the jaws describe in crushing the food. This, if allowed to go indefinitely, might be responsible for the very grave condition described by Girard and H. Bouley as "Beveling of the Molars," in which condition the tables of the molars, instead of meeting each other on an almost horizontal plane, are sometimes worn down so obliquely that they become almost parallel to the median plane and overlap each other like the blades of a pair of shears. This obliquity of the wearing surfaces enables the external side of the superior molars, and the internal side of the inferior, to frequently acquire enormous length, even to the extent of injuring the parts around the crowns. The French authors give this condition the name of "molaires en ciseaux," from their resemblance to a pair of shears. I do not wish to be understood as claiming that this grave condition just described is always, or only, due to neglected spiculæ, nor that neglected spiculæ would always lead to such an exaggerated abnormality; but that it is possible for it to result from neglected spiculæ if they occur early in the animal's life, by restricting the movements of the jaws across each other, and gradually encouraging the upper jaws to spread outward, and contracting the lower jaws. This, if carried on for a life time would so change the direction of the teeth that instead of their grinding surfaces meeting, the sides would meet, and sharpen out in the manner

described. But the direction of the teeth resulting in this abnormal relation and consequent condition, might, on the other hand, not be due to neglected spiculæ; but to having started their growth at an improper angle. Another somewhat common condition that we are brought in contact with is a projecting molar, resulting from the absence of the opposing molar, and consequent lack of wear. I will not touch upon the diseases of the teeth in this paper, but have simply mentioned one or two abnormal conditions, as compared with the normal state, and will now endeavor to explain the statement that these abnormalities would not exist, or be present in a much modified form, if we did our duty in regard to examining the horse's mouth at all times, and gave it attention when we considered it required it, and not merely when a layman thinks that something should be done. I do not mean that we shall be so undignified and unprofessional as to ask men to allow us to attend to their horses' teeth; far from it. That is done by another class of "gentry" whom you all know; but we can be careful to examine a horse's mouth as to the condition of his teeth when we are called upon to prescribe for him. We may be told that he is "off his feed," or "out of condition," or "isn't just himself," "does not drive up as he used to," etc., and it is our privilege then to examine him thoroughly, and there is no restriction placed upon his mouth. If we find that his teeth are in perfect condition, it helps to our diagnosis by removing them as one of the possible causes, and if, on the other hand, they require attention we learn that. All of you have probably at sometime or other found a so-called "subject to colic," to be suffering from irregular molars, and on correcting that condition had the satisfaction of seeing the horse enjoy the same freedom from that trouble that another horse would. I have. When examining horses for soundness, we have the privilege of passing the hand over the surface of the molars, just as we would pass it over any other part of his body. We need not condemn him because his teeth are slightly irregular, and we need not mention it in our report to our client, merely making a mental note

of it for future use, but if we find a molar decayed, or one missing (not likely conditions, it is true, but possible ones, nevertheless), it is our duty to our client to know of their existence, and to acquaint him of it. If we have found merely irregularities, we need not call his attention to it necessarily until after he has purchased, as it is a remediable condition; but we should then by all means acquaint him of the fact, and impress upon him the importance of this gristmill turning out a product that is in proper condition to pass down into the laboratory (the stomach), where extracts are to be made from it for the requirements of the body. One or a dozen men cannot materially affect the condition of the horses' teeth of the country, but if there was a unity of action very few would escape observation for any length of time, and would not have opportunity of reaching the extreme conditions cited. And the horse-owner, impressed with the importance of the subject, and the interest taken in it by the professional man, would not be a prey to the empirical self-styled "veterinary dentist," who hopes by thus dubbing himself a specialist, to impress the uninitiated and escape the law forbidding him to practice veterinary surgery without a license. I always insist upon my students at the college examining the molars as well as the incisors in examinations for soundness, with the hope that they will continue to do so in practice, and more and more appreciate and teach their clients to appreciate its importance, so that "veterinary dentistry," like other branches of medicine and surgery, may become prophylactic. Gentlemen, while I know that I have scarcely outlined the subject under the title of this paper, I will end it at this point, and trust that my shortcomings may be overlooked because I am considerate enough to stop somewhere. In fact, the paper would have been more properly entitled "The Horse's Mouth," as I have not dealt with a single procedure to overcome the abnormalities mentioned, which would be more correctly speaking, "Veterinary Dentistry." I have purposely curtailed my paper, so as to leave the operative field untouched, as we have another paper on the same subject, which I have assumed will enter into it.

EXAMINING HORSES FOR SOUNDNESS.

By Dr. H. Fulstow, Norwalk, Ohio.

Read before the Ohio State Veterinary Medical Association, January, 1903.

I might, perhaps, have found a more interesting subject to write upon than examining horses for soundness, but it is a subject of very great importance to some of us, especially some of the younger practitioners. Although I may not be able to enlighten a great many of the older members, especially those in the large cities, who do a great deal of this kind of work, I, myself, may be able to gain some valuable information through its discussion.

This is a very broad subject, and one that requires a great deal of skill and judgment on the part of the person making the examination, and at times it is not an easy matter to state positively whether the horse is sound or unsound. It puts the veterinarian in a tight place at times, and quite often makes enemies for him, as it often happens that the seller and the would-be purchaser are both customers of his, and while he does not want to deceive the buyer, at the same time he dare not spoil the sale that is already made, providing they pass the examination. How is this difficulty to be overcome? Of course, if the horse is practically sound, with the exception of a small splint or scar, or some other little minor blemish, and the purchaser a man of good common sense, it becomes easy; just inform him that there are but very few horses that are absolutely sound, and that this horse is sound with the exception of this small blemish, whatever it may be, and that it will never interfere with his usefulness in any way. There is a great deal of deception and trickery in the horse dealing business, and when a horse is brought before us for examination, we must have our eyes open and also our ears. But sometimes it would be better for us if we had our ears closed to the seller, as he may be a friend or relative or perhaps the parson of the church that we attend, but friends and relatives are to be considered as strangers until we have thoroughly made our examination and found

him to be as represented. Nearly everyone in the horse business thinks he knows when a horse is sound, but I am sorry to say that a great many of them have no idea of the word "soundness," when it comes to selling a horse. Absolutely sound horses are as scarce as hen's teeth, when they come before the critical eye of the veterinarian. There are a good many veterinarians who are not as good judges of horse flesh as they ought to be, and I think that part of the training of the student while in college is not given as much attention as it should be; then, again, some would never learn it. I claim that to be a good judge it must be bred and born in him. Some of our best judges are men who never saw the inside of a college, but are expert judges, just the same. Then, again, some are good judges, but have no principle whatever, and will do anything for the fee they receive. Now let us see what "soundness" means. It means entire, unbroken, free from any imperfection, defect or decay, without spot or blemish. How many horses do we see in our daily travels that would come up to this standard? I say they are very scarce. There are a great many that are practically sound; what I mean by practically sound, is that they have some slight blemish, such as a scar or small splint or wind-puff, or some little noticeable thing that does not interfere with their usefulness in any way, and are otherwise sound. A person wishing to purchase a horse looks around and finds what he thinks will suit him; he rides after him, the price is agreed upon, but he is no judge himself, so he says: "I will take him if he is sound and all right. Now you take him to Dr. —— and have him examined, and if he is sound I'll take him." They drive up to your office and make their business known. If hitched, get into the rig and take a ride after him while warmed up, watching him at every move; see that he does not nod and that he travels squarely behind; notice him while turning and backing up. Then have him unhitched and unharnessed. Take a good look at him while this is being done, for any malformation which may be visible; have him placed in the stall until thoroughly cooled off, and while

there watch him for cribbing, weaving, and see that he stands squarely on all four feet. After he is cooled off, have him backed out of the stall, watching for chorea, and see that he does not come out sore. Some horses are quite sore when first brought out of the stable, and after traveling but a very short distance, get right over it. Next take a look at his lips for paralysis, then his teeth for cribbing, decayed teeth, or any malformation, such as parrot mouth or undershot, also at his age. Then at the nostrils for any discharge or foreign body, such as polypus, sponges or abscess of the false nostrils. Then take a glance at the head, the general outline of it for enlargements of the various sinuses. Next look at the eyes, and see that there is no discharge of tears flowing over the cheek from the inner corner of the eye, indicating stoppage of the lachrymal duct. Examine the ears for tumors, split ear, paralysis and fistula; then look between the jaws for enlarged glands, fistula, etc., also at the parotid gland; then examine for poll-evil and pass the hand down the neck under the mane for warts, tumors, etc.; then raise the jugular, see that there is no obliteration of it. Examine the withers for enlargements, fistula; the shoulder for atrophy of the muscles, tumors, scars; the elbow for shoeboil; flex the knee for anchylosis; look down the cannon for splints, the tendons for contraction, bowed tendon, examine the suspensory ligament, the fetlock for bursal enlargements; look for ringbone, sidebone, quittor, quartercrack, corns, atrophy of the frog, thrush, too concave a sole, pumiced foot, brittle feet or contraction. Pass the hand down the back and sides and under the belly for hernia; examine the sheath and scrotum carefully for warts, scars, the results of abscesses. Then over the croup and hip, and see if both hips are alike. Examine the stifle, then the hock carefully, as it is the seat of a great many different kinds of lameness. Look at it from side to side, also from between the front legs, also from behind; carefully pass the hand down over it, and be sure there is no spavin present. Look at it from side to side for curb, spring hock, bog spavin and thoroughpin. Examine the tendons and

foot same as in front, then examine the other side in the same manner. Lift the tail and look for gilflirt, if a mare, also for melanotic tumors, and see if it has a good strong dock. Then have your animal walked and trotted slow for lameness, giving him his head. Next back him and turn him from side to side for stringhalt; scare him with a whip, then see if he can back while excited. Next put a man on his back and give him a good sharp gallop to test his wind, and if you are sure it is all right and he has no signs of heaves, take him into a dark stall and turn his head to the light, and test his eyes thoroughly. If you are suspicious of heaves, put him back into the stable and feed him plenty of hay and water; then take him out and try him again. This all requires considerable time, and we must not be in too big a hurry in giving an opinion. A good many of us are very careless in our examinations and do not go at it as thoroughly as we ought to, merely looking the animal over as he stands hitched, then take a short ride after him or stand and watch him driven to and fro, and if he appears to be sound give an opinion, and sometimes a certificate, as the case may demand. If we make a mistake, someone is sure to find it out and make it their business to tell the party; then they will have no confidence in us; besides, it will injure our reputation.

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WONDERFUL STATISTICS.—According to statistics, there were in the United States in 1900 over 130,000,000 quadrupeds useful for food or for work. They average a value of $20 a head, making a total value of $2,500,000,000. This is nearly three times the total debt of the United States. Later statistics increase this total to $3,500,000,000. It is equal to more than one-fourth of the capital employed in all the manufacturing in the United States, and more than one-sixth of the value of all the railways.

ACUTE INDIGESTION.

By J. S. Butler, Minneapolis, Minn.

Read before the Annual Meeting of the Minnesota State Veterinary Medical Association, January, 1903.

This is one of the most painful and, when accompanied by impaction, one of the most dangerous diseases of the horse. It is estimated by some authors that at least four-fifths of the draft horses sooner or later die from indigestion or its sequelæ. The small size of the horse's stomach with his practical inability to perform the act of vomition makes him susceptible to the above disease and its liability to end fatally when seized with an acute attack.

It is more common among draft horses than those used for driving purposes, owing to the large quantities of hay and grain allowed them, often of inferior quality and given at irregular intervals. Old horses who have worked hard and are heavily fed frequently succumb to an attack.

Causes.—Improper food, dry innutritious hay, or the opposite: green succulent food in large quantities; lawn grass partially cured; new oats or corn in too large quantities; mill feed, the consistency of which is only known to the miller; bran and shorts when given too liberally and wet with cold water; horses given a full feed of grain when tired and hungry before satisfying their hunger partially with a little hay; a sudden change of food in regular quantities; an extra quantity of grain allowed when an extra amount of work is to be performed, allowing large quantities of cold water soon after feeding grain; imperfect or sharp teeth preventing the proper mastication of the food; a ravenous eater when two horses are fed together in one box, one may get more than his proper share; boiled food unless fed sparingly and before it is allowed to sour and unless the boxes are kept sweet by frequent cleansing; wheat, unless very sparingly fed; cut hay or straw with ground feed owing to improper material being used and fed in too large quantities; ensilage improperly prepared and injudiciously fed;

oats or corn not thoroughly cured when consumed in large quantities, swell and distend the stomach enormously, paralyzing the organ or rupturing its walls.

Symptoms.—When at work is sluggish and hangs back in the collar, perspires freely and looks around, showing abdominal pain. Hangs his head low and occasionally raises his head as high as he can get it, holds the nose poked out and turns up the upper lip. Stretches out to get the pressure of the abdominal muscles on the stomach, which the attendant invariably considers a positive sign of urinary trouble. With a little treatment, in some cases the attack may pass off without any other serious symptoms. But usually the animal is kept at work till he refuses to go farther and wants to lie down, which he will do very forcibly sometimes. Mucus flows from the mouth, gases are eructated from the stomach and the pain becomes very severe, and unless in a comfortable place, may tumble around so as to injure himself unless restrained. He shrieks and retches in his attempts to empty the stomach by vomition. This he may be partially able to accomplish, small portions of the food being forced up through the nose and mouth. The pulse runs from 60 to 80 beats per minute, which is at first strong, but gradually becomes weaker and faster unless the pain is relieved. The stomach when badly distended with gases or food, or both, may not be able to stand the strain, and when throwing himself around violently the walls give away, or rupture of the diaphragm or intestines may take place. The tympany of the intestines may be so great that asphyxia takes place unless speedily relieved. Small quantities of fæces are frequently passed covered with mucus, and often soft in consistency. The pain continues as long as gases are being generated in the stomach and in some cases it is impossible to stop the fermentation permanently. May be able to control it for a time, and is a bad symptom when fermentation starts in again after animal has been sick some time. Such cases usually terminate fatally by exhaustion or gastritis.

Vomition is rarely performed in the horse and many theo-

ries have been advanced to explain the phenomena, viz.: (1) His non-susceptibility to nauseants. (2) Anatomical peculiarities of the stomach, it being very small in proportion to the size of the animal. (3) Ruge or folds of mucous membrane in the cardiac portion of the organ acting as a valve to the œsophagus. (4) Non-development of the vomiting centre in the brain. (5) The stomach too small for the abdominal muscles to properly grasp it to force out the contents. In rare cases quite free vomition may and does occur, which immediately relieves all his suffering, and when this occurs early in the attack before inflammation has taken place, recovery speedily follows. Vomition more frequently occurs just prior to or at the time of rupture of the organ.

Usually it is not difficult to diagnose rupture of the stomach if the veterinarian has been present before and at the time the rupture occurs, providing rupture is extensive. The eructation of gases suddenly ceases, the pulse rapidly becomes weaker and faster, membranes become pale, muscles tremble, cold sweats break out over the body, ears lop, and ears and legs become cold, respirations are accelerated and the animal usually stands. The idea that sitting on the haunches is a symptom of rupture I think is erroneous. This occurs when suffering from impaction or other obstructions of the bowels. An animal may die in 30 minutes or live for hours, depending upon the extent of the rupture and the vitality of the animal.

The sequelæ are gastritis, gastro-enteritis, laminitis, coma or delirium from the absorption of gases, chronic indigestion, dilatation of the stomach, functional inactivity of the heart, rupture of the stomach, partial or complete, rupture of the diaphragm or intestines, eczema.

Prognosis.—Should be guarded, for apparently simple cases may develop into very severe ones; any case may disappoint one if too sanguine of success. Don't leave the animal too soon thinking him out of danger, for fermentation may start in again and the animal be found dead a few hours afterwards.

Treatment.—Place in a well-bedded box stall or small pad-

dock if possible, and if pain is very severe give morphine and atropia hypodermically; if moderate give 2 to 4 drs. fl. ext. cannabis indica, or 1 oz. chloral. Then give 3–4 drs. carbonate of ammonia in pill form to arrest the fermentation, and repeat in half an hour if necessary. If the second dose fails, try any one of the following remedies or combination of two or more: Bicarbonate of soda, hyposulphite soda, chloride of lime, creolin, salicylic acid, chlorate of potash, quinine, carbolic acid, sulphuric ether, aromatic spirits of ammonia, chloroform, charcoal, turpentine, capsicum, ginger, assafœtida, nux vomica. If case is stubborn and there is impaction, give a cathartic of 6–8 drs. of aloes, 1 dr. of calomel, and 2 drs. of ginger in a pill.

Whatever you give, give in concentrated form; don't pour bottleful after bottleful of liquids into an already over-filled stomach, adding fuel to the fire.

Give hypodermically ½ gr. each of eserine and pilocarpine to facilitate the removal of contents of stomach and intestines. If in danger of asphyxia from tympany, use the trocar at the most distended part on either side, or both.

Enemas are rarely necessary. Hand rubbing over the region of the stomach may facilitate the passage of the food from the stomach. Have seen marked benefit from passing the probang by relieving the distention from gases. Don't give up the case, for an apparently hopeless one may finally yield to treatment, and besides, if you give it up, a competitor may be called in and get the credit of bringing a dead animal to life.

No routine treatment can be laid down for such cases, but each one must be treated according to the symptoms presented.

Don't mistake a case of choking for indigestion with impaction, accompanied by retching and attempts at vomition. The complications or sequelæ must be treated as developed, if amenable to treatment. A partial rupture of stomach may occur and the animal apparently recover, but sooner or later will succumb to another attack.

A. O. KENNEDY, V. S., Columbia, Tenn., reports almost an epizoötic of influenza in his section.

PRELIMINARY REPORT ON A NEW METHOD OF PREVENTING MILK FEVER.

By A. S. Wheeler, V. M. D., Resident Veterinarian, Biltmore Farms, Biltmore, N. C.

During the past few months several modifications of the Schmidt-Kolding treatment of milk fever have been announced, such as the substitution of salt solution, sterile water and sterile air for the iodide of potassium solution. Those who have tried these modifications claim as good results as have been obtained with the iodide.

Mr. Weston, our Farm Superintendent, who recently returned from a trip to the Island of Jersey, informed me that the Island breeders depend upon not milking out the cows when they calved, but simply eased the udder for the first few days, and seldom had a case of milk fever. I forthwith determined to act upon this suggestion, with the following results: Since November 1st, 1902, the Island system has been tried on thirty cows, fourteen of these being among our deepest milkers; seven having made over fourteen pounds of butter after previous calvings and one having made eighteen pounds and fourteen ounces of butter after being submitted to this treatment.

The *modus operandi* consists simply in milking from two to three pounds every six hours after calving, for the first three days, or about one gallon to a gallon and a half in twenty-four hours. After the third day may milk the cow clean. In other words, ease the udder in the same manner the calf would, only drawing the milk equally from each quarter, which the calf would not necessarily do.

Theoretically one might expect that mammitis would be induced by not relieving the udder thoroughly. Four cows have manifested udder derangement since this treatment has been resorted to. Three of them had udder trouble after previous calvings, and only one, not a serious case, developed after the last calving, which might have occurred anyhow. We are not warranted in drawing any definite conclusion on this point yet.

None of the thirty cows exhibited the slightest symptom of parturient paresis, which is unprecedented in the Biltmore herd for an equal number of heavy milkers for several years past; in fact, ever since the lactæmic or milk poisoning theory has prevailed, and we have been taking great pains to milk our cows as often and thoroughly as we could after calving.

This colostrum-distention idea takes us back to the old fashioned hypothesis of the causation of milk fever, namely: that it is induced by the sudden determination of blood and nerve force from the uterus to the udder; disturbance of the blood pressure and the nerve centres producing anæmia of the brain and a shock to the whole organism.

I readily recognize that the foregoing facts do not demonstrate the entire reliability of the treatment, as they do not cover a sufficient number of cases, nor a long enough period. However, it certainly has given, in our hands, most encouraging results, and it is my desire that others will undertake it and give it a fair trial and report their results, as at this writing I withhold my unreserved indorsement of it. I might add that no other measure was employed in the foregoing cases, not even a dose of salts was administered, as it was my desire to eliminate as far as possible every other factor during the experiment.

"I NOTICE that Dr. Gribble claims to have been a subscriber to the REVIEW for 18 years. I think your books will show that I have been a subscriber since April, 1881, 22 years. In the past two score and two years I have learned many lessons from the experiences of others from its pages, that have been of great benefit to me, and hope it will continue to be what it is now—the very best veterinary periodical published."—(*A. W. Axford, V. S., Naughright, N. J.*)

IN Brooklyn, N. Y., a horse died, and the contractor for removing dead animals was notified to call and take away the body. By error the driver entered an adjoining stable, where the pacer Dr. Woods, valued by his owner at $3500, was lying sick. Thinking this horse to be the one referred to, the driver fastened a rope about his neck, and began winding up the windlass on the wagon, which effectually asphyxiated the pacer. Now his owner says he will sue the contractors for the price of Dr. Woods.

OBSERVATIONS ON COUNTRY PRACTICE.

By S. H. Bauman, D. V. S., Birmingham, Ia.

Read before the 15th Annual Meeting of the Iowa State Veterinary Medical Association, January, 1903.

Having had experience in both city and country practice, it occurred to me that I might be able to give a few items that might be of interest at least to those who have had no experience in country practice, and perhaps be able to point out the large, pleasant and lucrative field still open to our profession. A little over five years ago when I left the city I hardly expected to follow the profession except as a side-line, having decided to make farming and stock-raising my future business. I was of the opinion that in a farming community there would be little or no sickness among stock owing to the natural surroundings, such as exercise, forage, good care and experience gained by farmers in handling stock from their youth up, and hardly expected to find anything outside of the simple cases and occasional cases of obstetrics. But to my surprise I found the field a large one with perhaps a greater variety of cases than are found in a city practice. In regard to the side-line, inside of a year I had to turn over the management of the farm to other members of the family, my practice wholly occupying my time. I have found the field both pleasant and profitable and find the farmers take a great deal of interest in the treatment and operations and as a class are exceedingly well posted on disease and treatment in general; much more so than their city cousins. This knowledge results from reading the best farm and stock papers and reports from the experiment stations and Department of Agriculture. To illustrate: when first I used the Schmidt method in the treatment of parturient apoplexy for quite an old farmer he watched me with interest for some time, then said, "That's new in the United States. I don't see how they got it over here so soon. Why, it's only a short time since Dr. Schmidt was making his experiments in Europe." Asking him how he came to know so much about it, he said

he had got it from the Government reports and papers.

The field is a nice one, in that you get good treatment from your patrons. Talk about the cooks and good meals! They make you feel that the best is none too good for the "horse-doctor." It is not the dollar you earn, but the dollar you save that counts in the end, and that is what I like in a country practice. Your table is almost wholly supplied from your own garden and farm. The feed for the horses is not a direct outlay, as it is all produced on the farm, and this is quite an item when you run an infirmary. Probably as great a source of profit as any single item, is being able to pick up bargains in young stock, slightly blemished, requiring time and not much treatment, allowing it to run on the farm and develop. In a country practice a man should be fairly well posted in disease and treatment of all domesticated animals, as many of your calls are to cattle and sheep. Creameries and the two crops of sheep, *i. e.*, wool and lambs, make money rather plenty in the country, making collections fairly easy and prompt. Conditions have vastly changed from what they were under the old system of farm life, when the whole crop was held and marketed but once a year. In the richer and better farming communities the stores run delivery wagons, delivering groceries to the farm-home regularly and collecting the farm produce. New houses are being erected everywhere with furnaces, baths, acetylene lights and all modern improvements. The tendency is for better schools, and all the towns and villages have a good system of graded schools. It is really hard to find a house that is more than a mile from a rural telephone line, which keeps you in close touch with your patrons and all the towns and villages in the country in which you live. This, with rural mail delivery, makes the country one of the most desirable places to reside. The tendency in all farming communities is for better roads, and already when the material can be procured cheaper, all bad pieces of roadway are being macadamized. We also have many places in our State where interurban electric lines are being built, while many other lines are being projected, and the farmers are ready to as-

sist in the building of these by granting right of way and voting tax to help pay for their construction. Farmers as a class are comfortably fixed, while many are quite wealthy, and, as a rule, are contented. The society is of the best; the young people have their parties, socials, singing schools and literary societies at nearly every school-house, while in the towns, which are only five or six miles apart, they have lecture courses, light operas, etc. The older portions of the community have their birthday dinners and other social meetings without number, and all who wish to attend are made welcome and cordially treated.

The best part of a country practice with a home on a farm is the healthy and moral surroundings of your family, who are inspired by the natural environments to become industrious, rugged citizens, all of them employed pleasantly, and, as a rule, contented. The day of the "clodhopper" and "old hayseed" is past. The farmers' sons and daughters are as a rule graduates of the graded schools, and many of the most successful business and professional men have developed their fine physical constitutions and breadth of brain on the farm. The farmers are waiting anxiously for men of our profession to locate among them, and if we are worthy of their confidence and qualified, they will do all in their power to hold us there by giving us their patronage and encouragement. I do not wish you for a moment to think everything is flowing with milk and honey in the country. In certain times of the year roads are very bad. We sometimes have partial failure of crops and many other discouraging things, but on the whole I consider it pleasant, profitable and a wide field to develop.

LAST YEAR Governor Murphy, of New Jersey, appointed Dr. William Herbert Lowe (author of the law regulating veterinary practice in that State) on the State Board of Veterinary Medical Examiners for the short term, so as to be able to give him the long term while he was in office as Governor. Last month the Governor carried out this purpose by appointing Dr. Lowe to the full term of three years, to date from May 5, 1903.

COMPRESSED AIR IN THE TREATMENT OF ULCERS AND FISTULÆ.

By Arnott A. Adamson, M. D. V., Newton, Ia.

Read before the 15th Annual Meeting of the Iowa State Veterinary Medical Association, January, 1903.

Compressed air has for some time been used with varying success by physicians of this and other countries, not for its therapeutic value alone, but as a means for the application of the therapeutic agents indicated in the treatment; and for application to delicate and remote tissues that could not be reached by the ordinary methods.

In the arena of the veterinarian, the success of the physicians along these lines can be duplicated, and more. As a means of application of the required therapeutic agents in hospital practice, it is convenient and exceedingly valuable in the treatment of fistulæ and sinuses of a tortuous nature that will not permit the use of the knife or probe. In the application of the required pressure the medicinal agents used for the cleansing and dressing can be forced to the utmost ramification of the sinus, thoroughly cleansing it without injury to the surrounding tissue.

In the treatment of diseases of the nasal passages and respiratory apparatus it is far superior to fumigation as a means of reaching and relieving the delicate tissues and membranes in those parts that are so sensitive to anything foreign. Another advantage is that the exact amount of dosage is known and the results arrived at in a much shorter time. Minute ulcers, almost microscopic, on the eyelids can be sprayed thoroughly and effectively and to a great advantage with a spray. So gently is it accomplished that the patient is not discomforted in the least, as the air, when producing a spray, diffuses the force, while in the syringe or dropper the force is concentrated, it matters not how gently we endeavor to use it.

From an economical standpoint it permits the use of more of the refined and valuable, instead of the cheaper and less refined drugs and drug preparations, reducing the waste to an absolute minimum.

REPORTS OF CASES.

"Careful observation makes a skillful practitioner, but his skill dies with him. By recording his observations, he adds to the knowledge of his profession, and assists by his facts in building up the solid edifice of pathological science."

SOME INTERESTING CASES OCCURRING IN PRACTICE.*

By J. H. BLATTENBERG, V. S., Lima, Ohio.

Strongylus Armatus and Verminous Aneurism in a Foal.

During the latter part of the summer was called to Lima Stock Farm, the home of Norval, to see a highly-bred filly, four months old, by the horse mentioned. To all appearances and examination presented colic, due to volvulus. The administering of narcotics gave but temporary relief; the free use of clysters added nothing to her ease, she lingering about twenty hours, when death ensued.

Curiosity prompted an examination of the cadaver. The large intestines contained quite a number of *Strongylus armatus* in a bloody-tinged liquid; the walls dark red and thickened; a sero-hæmorrhagic infiltration of the wall at the attachment of the mesentery. Large mesenteric artery contained a verminous aneurism, showing quite thickened walls, the interior of which presented an inflammatory calcification, resulting in almost entire occlusion of the large mesenteric and some of its branches. In these degenerative occlusions were quite a number of the *Strongylus armatus minor*. There were some also found in the peritoneum in different parts of the abdominal cavity. There was nothing noticeable of an altered condition with any of the other organs.

The rather interesting part of this case is, it is so very rare to find a verminous aneurism in an animal so young, but is recognized by those in authority as common in the equine subject as the animal advances in age.

Amputation of a Bull's Penis.

On September 30th was telephoned to call at my convenience to see a bull which had not been doing well for a week previous. On arriving found the animal in a much worse condition than had been represented to me; had not been seen to urinate for some time. In appearance he was in somewhat of

* Read before the Annual Meeting of the Ohio State Veterinary Medical Association, January, 1902.

an emaciated condition. On completing examination it was shown the trouble might be with his main organ of generation, as by the size it represented being abnormally large, the distension forcibly retaining it within the sheath. Diagnosis: uræmia.

Returning later, with hopples, I cast and secured the bull; protruded the penis, which required some little force, owing to its abnormal size. It presented to all appearances a gangrenous slough. The attachments of the penis to the deeper parts of the sheath had nearly all sloughed loose. The meatus urinarius could not be located at the extremity of the sloughing organ.

Associating the owner with the probability of only making a steer to fatten, quite a quantity of warm water was ordered, the penis and inside of sheath cleansed as well as possible with creolin solution, and cutting the remaining attachments of penis and sheath. Cleansing the skin along the perineum, I made an incision over the course of the penis about half-way between the anus and testicles, severing the retractor muscles, taking up what blood-vessels required it. Getting around the penis with the fingers, it was forcibly drawn through this incision its entire length except from the incision to the brim of the pubis. Dissecting out the urethra, the penis was amputated. The urethra, about half an inch longer, was stitched about the end of the remaining penis, leaving a stub of penis about two inches long. I stitched the incision in the skin close to the remaining penis. After castrating, the patient with some effort was made to rise. He now voids urine similar to a cow, and from last reports is about ready for the market as a fat steer.

RUPTURE OF RECTUM AND VAGINA IN A MARE DURING PARTURITION—SUCCESSFUL TREATMENT.*

By S. H. BAUMAN, D. V. S., Birmingham, Iowa.

On March 29th, 1902, I was called to Keosauqua to see a fine saddle-bred mare, and was informed by the owner that the mare had been delivered of a colt through the rectum. That he had been watching the mare and went to the house for a short time, and on his return to the barn found the front legs and nose protruding from the rectum. He undertook to shove the colt back, but could do nothing. The colt was delivered in a short time and seemed all right. I arrived about five hours

* Read before the 15th Annual Meeting of the Iowa State Veterinary Medical Association, January, 1903

after birth of the colt. The mare was uneasy and nervous, but otherwise was all right. Upon examination I found the recto-vaginal septum completely ruptured. The perineum was not torn through, but the rupture extended down to the left of the vulva close to the hip. It being late and not having a suitable place to operate, I had the mare brought to my barn next day, where I bought the mare and the colt. On examination I found the parts badly swollen. No fæces had been passed since parturition and the vagina was completely filled. After removing the contents and thoroughly cleansing the parts with a creolin solution, I allowed all ragged edges to remain, not doing any trimming with the scissors or knife. I took heavy twine and tape and put in as many sutures as possible, part interrupted, and others of any kind I happened to get. Then packed the vagina completely full of carbolized oakum for a support to the stitches. The mare was tied so that she could not lie down. The fæcal matter was all drawn by hand and the packing in the vagina changed every third day. Whenever a weakening in stitches was found a new one was inserted. In about twenty days the septum between the vagina and rectum was completely closed. My great trouble was in the external opening. The excrement would work down into the rupture in spite of all I could do, and in cleaning out the same had to break granulations almost as fast as they would form, so I commenced to remove the fæces with the hand again and not allow the mare to do any straining, and in a short time the opening closed. The mare was turned into pasture in about six weeks, but it was August before I quit treatment. Weaned the colt in September and commenced driving the mare October 1st. The only inconvenience I find is that the anus remains slightly open when the mare is very gaunt after a long and hard day's drive. By the way, I have one of the best drivers I ever owned. The filly is a splendid and very promising one. Owing to the nature of the food and the fasting, the mare did not furnish sufficient nourishment for the colt, so we had to feed cow's milk, which I diluted with water and added limewater, sugar and brandy.

OBSTRUCTION OF BOWELS IN A HORSE DUE TO ABSCESS IN THE LUMBO-SACRAL REGION.*

By S. H. BAUMAN, D. V. S., Birmingham, Iowa.

In 1898 I was called to a case of colic, but the horse died

* Read before the 15th Annual Meeting of the Iowa State Veterinary Medical Association, January, 1903.

before I arrived. The history of the case was that the horse had shown a few colicky symptoms for more than a week, but, as he was in pasture and kept eating, the owner paid little attention to him. But on the day I was called he found the horse in a serious condition, with result as stated above.

I found in making the post-mortem examination all organs normal except the bowels, which were impacted, and especially so was the floating colon. After removing the bowels and not being satisfied that I had found a sufficient cause for death, I continued my examination and found an abscess immediately beneath the lumbo-sacral articulation. The abscess was almost as large as the crown of a hat and had pressed upon the rectum so as to completely obstruct the bowels. On opening the abscess, which was about ready to break, I found over a pint of pus. Since that time I have had quite a number of these cases, and whenever I have an obstinate case of impaction, especially where the horse points high, I make an examination, and it is surprising the number I have found. All these abscesses are similar and in the same location. The last one I had was Dec. 26, 1902, in a fine mare. A description of this case will answer for all. The horse is drowsy, paws a little once in a while, lies stretched flat on the ground, turns the head to the side and points very high, as a rule, but I have had them where they point low, get up, graze for a while and lie down as before, and remain in this position for quite a while; have never seen any bloating in these cases. The only treatment required is to remove with the hand all the fæces and repeat this as often as the back bowels become obstructed. As soon as this is done the horse will resume eating. As soon as the abscess is sufficiently developed either break through the rectum with the finger or cut through with a short hooked knife and evacuate the abscess. No medicine is required in any of these cases except carbolized oil. Do not allow the animal to have much bulky food. Many of these cases will break quickly and the horse will recover of his own accord. All the cases I have had recovered, but I have had several which formed satellites, which required treatment as above for ten to fifteen days. There are no external symptoms, as in case of furunculus, close to the anus, in which we always have external swelling. The only theory I can advance as to the cause of these abscesses could be some injury to the vertebræ at this point, or possibly a severe sprain.

TRAUMATIC MYOCARDITIS IN COW.

By C. E. BURCHSTED, M. D. V., Exeter, N. H.

Was called Feb. 6th to see cow that had not felt well since the Tuesday prior to my visit. When questioning owner was told that she had not eaten since that day. Found her lying and getting up at intervals of five or ten minutes as though in pain; the temperature was elevated, 106° F., pulse small and evasive, showed chills, bowels not very free, although had been given salts, thoroughwort, etc. On auscultation found lungs normal except over right, a spot as large as saucer seemed dull; dyspnœic; ears and horns warm, milk decreased; had typical symptoms of indigestion. Gave half dose of magnesia sulphate and left fl. ex. nux vomica to be given in ʒ *ss* doses t. i. d. She seemed to improve until the following Tuesday evening, when she became worse than ever. Saw her Wednesday morning between 10-11; found her stretched out upon right side, contraction of cervical muscles to left; dyspnœic, chills and trembling; was unable to rise, propped her upon sternum. Upon auscultation of lungs found them clear, except increased resonance; examined heart and found splashing, or metallic murmurs of a peculiar vibration; pulse imperceptible, except regurgitation in jugular vein; unequal temperature of body; rectal 104° F.; ears, horns and extremities cold; nose dry, with signs of cardiac distress. Gave oil and strychnine, which seemed to weaken her, probably through resistance offered. Gave grave prognosis, and said I suspected foreign body in heart, which entered from stomach. Requested owner to let me know when she died.

Upon post-mortem, found an opening in the abdominal cavity and a protuberance the size of the thumb on inner coat of reticulum. There was a large area of fibrous tissue between the heart and diaphragm, through which passed a wire nail, 2½ inches long, and which was encapsuled, penetrating through the reticulum, diaphragm, and left ventricle in lower third, forming a gangrenous zone about ⅜ inches in breadth. The endocardium was covered with a septic coat of muddy appearance, and the right ventricle was filled with post-mortem clot, but no evidence of ante-mortem clot. The macroscopic appearance of muscular coat of ventricle manifested a chronic lesion, of degenerated appearance; left ventricle was empty. No microscopic examination made. Thinking this an interesting case, I give it in a clinical aspect only, which has its diagnostic difficulties, as there were no tumultuous beating and no friction, etc., characteristic of other cardiopathies.

CONGENITAL TUBERCULOSIS.

By H. B. FREEMAN, M. D. V., Inspector B. A. I., Sioux City, Iowa.

The following case is one which interested me very much and I think will interest all the readers of the REVIEW.

About Feb. 17th, while inspecting cattle at the Cudahy Packing Co., in Sioux City, Ia., I found a pregnant cow badly affected with tuberculosis of the pulmonary form, except for a slight affection of the liver. The period of gestation was about seven months advanced and the fœtus well developed.

Upon careful examination, one of the posterior mediastinal lymph glands was found to be enlarged and containing the characteristic deposits of tuberculosis. One bronchial gland was also found to contain a very small centre of the same material. The most careful examination failed to reveal any further infection either in the lymphatics or in the tissues of the body. The mesenteric lymph glands were very slightly enlarged but otherwise normal.

In order to verify my diagnosis of tuberculosis, the mediastinal gland was sent to the department at Washington for microscopic examination, which resulted in finding the *Tubercle bacilli* in the gland, and thereby proving beyond any question of doubt that this was a case of intra-uterine infection, which of course helps to substantiate the theory that congenital tuberculosis is possible, even though it may be rare.

FIVE CASES OF AZOTURIA.*

By A. S. BRODIE, V. S., Cedar Falls, Iowa.

Case No. I.—Bay gelding, down twelve hours before I was called. Treatment: Emptied the bladder with the catheter and took four quarts of blood from the jugular vein. Dissolved 16 drams of sodium chloride in three gallons of water and gave it subcutaneously. The horse was on his feet twelve hours after. Gave no further treatment and recovery was good.

Case II.—Treated the same way, only gave the second injection in 24 hours. The animal was on her feet the next day.

Cases III and IV.—Treated the same way and made good recoveries. The parts where injected became swollen from the amount of water injected, but all passed away in a few hours.

*Read before the 15th Annual Meeting of the Iowa State Veterinary Medical Association, January, 1903.

Case V.—Bay mare, 14 years old. Had stood three days in the stable, was driven three miles and went down. The gluteal muscles were very much swollen and she was showing abdominal pain. Treated the same as the others. Died three hours after. Post-mortem revealed an aneurism in the left iliac artery. Was the aneurism the cause of death? This case had been going lame suddenly at times for two years in the left limb, and would be in great pain and break out in a sweat, but would be all right in 24 hours.

DISCUSSION.

Dr. Heck thinks the most important part of the treatment in azoturia is good nursing.

Dr. J. W. Scott said that he only seldom catheterizes a male that suffers from azoturia.

Dr. Simpson said that he thinks catharsis is strongly indicated in azoturia. He uses eserine or calomel.

In reply to an inquiry by Dr. Repp, a number of members said that they have a common experience with azoturia in the anterior part of the body without involvment of the hind parts.

Dr. Malcolm thinks diuretics contraindicated in azoturia, but considers it useful to stimulate the bowels and liver.

Dr. McLeod uses potassium bromide internally to quiet the animal and makes applications of hot water to the loins.

Dr. C. E. Stewart also reports better results from bromide of potassium than from any other drug.

SUCCESSFUL CASE OF TETANUS TREATED WITH ANTITETANIC SERUM.

By T. J. MENESTRINA, M. D. C., St. Louis, Mo.

Black saddle mare, worth $500; contracted tetanus after two weeks from a nail wound. Owner called me in, stating that mare perspired very freely and acted very queer. On examination found the symptoms of tetanus, although I must state that the jaws were not locked. Immediately gave one dose of P., D. & Co.'s antitetanic serum, about 6 P. M. The following day at 4 P. M. I gave another, and so on, until nine doses had been given. The mare made a complete recovery in the course of one month.

A HORSE may, it has been said, pull with all his might, but never with his mane.

EXTRACTS FROM EXCHANGES.

GERMAN REVIEW.

By ADOLPH EICHHORN, D. V. S., Bureau of Animal Industry, Albany, N. Y.

THE ACTION OF LIQUIDS ON DIGESTION IN DOGS [*Dr. P. Leconte*].—Similar to Colin's experiments on horses, Leconte lately undertook a series of experiments to ascertain the changes of food, in both, with or without taking up liquids, during the different periods of stomach digestion. For this purpose, he experimented on thirty-three dogs, applying the same successful technic as used by the great physiologist of Alfort. Selected food was given, and drinking was allowed only on schedule time, and then the animals were destroyed by cutting the medulla, so as to prevent postmortal peristalsis. Following this quickly, the cardiac and pyloric portions of the stomach and the duodenum were ligated, and in this way each portion retained the position and distribution of the liquid and solid substances as they were at the moment of death. It was established that water taken up by the empty stomach soon leaves this organ and is promptly resorbed by the intestines; the small portion which remains in the stomach leaves this organ the latest in thirty minutes. In case liquids are not taken during digestion, as a rule the solids soon form a uniform soft mass; large pieces never pass into the intestines; the largest piece of a potato found in the intestines never exceeds the size of a wheat seed. The execution of the gradual liquification in the stomach, is at first noticeable in the pyloric portion and only at the end of stomach digestion do the last particles of meat, bread, and potato pass into the intestines, from whence a swift transportation towards the colon takes place. The smallest particles disappear in the first third of the small intestines, and only after twelve hours is the stomach completely emptied. If food is taken before the completion of stomach digestion, no particles pass into the intestines. The small intestines contain only small quantities of liquified food; it is well emulsified and differently distributed in the different portions. In the first part of the duodenum, it is more or less mixed with bile, and has very little adherence to the walls; further, in the first third of the small intestines, it takes on the consistency of syrup and is more adhesive, so that it must be scraped off, by which the height of

digestion is reached, or even passed. In the second half of the small intestines the chyle takes up a brown coloration, does not adhere to the walls, and from here on shows more and more the fæcal-like character; through resorption it becomes thicker, and on nearing the cæcum gas bubbles make their appearance, the first sign of fermentation. If there are worms present they are generally in the second quarter of the small intestines, where the acid reaction and bile mixture ceases; further back in the brownish mass, one meets only fragments of ascarides and tapeworms. In case liquids are taken during the progress of digestion, when fed on a mixed diet, the liquid penetrates the solid contents of the stomach with remarkable facility, frequently without thoroughly soaking the same, and during which no liquified food is pressed into the intestines, or only a very small amount. After twelve minutes the liquid has already reached the intestinal canal, and it is absorbed just as quickly as it arrived there. After this time the contents of the intestines have the same appearance as in dogs which have not received drinks; the digestion, therefore, is not interfered with, even when drinking abundantly. Only when fed on pappy food, the drink mixes thoroughly with the contents of the stomach, and dilutes quickly the chyme, which is always accompanied with a marked enlargement of both curvatures. These observations prove, that those suffering with gastric troubles may be allowed to quench their thirst at any time; 100–200 c.c.m. can be taken without the slightest harm, only if abnormal thirst is present the first drink should be resorbed before the second is taken.—(*La Cellule*, *D. T. W.*)

EXPERIMENTAL EXAMINATIONS OF THE DIURETIC ACTION OF AGURIN, AND ITS APPLICATION IN VETERINARY MEDICINE [*H. Jacob*].—The author recommends this drug in preference to diuretin (also a theobromin preparate), which, due to its component of salicylic acid, suppresses to some extent its diuretic action, and besides is contraindicated in simultaneous affections of the digestive apparatus. Agurin is a double combination of theobrominnatrium and matriumacetate, both having a diuretic action. Experiments which were performed by the author on a number of animals, proved that this agent acts promptly and markedly as a diuretic, in all hydropic conditions with the exception of one, which results from parenchymatous nephritis, and is well endured by a catarrhal condition of the mucous membrane of the stomach. It has never caused poisonous symptoms in its therapeutical applications. Doses for

dogs 1.0–1.5 g. pro die, horses 10.0 pro die, most suitably administered in the form of pills.—(*Deutsche. Thier. Wochenschr.*)

STUDIES OF A SOUTH AMERICAN DISEASE AFFECTING THE EXTREMITIES OF CALVES [*O. Voges, Buenos Ayres*].—The author observed this disease very frequently in calves. By his description it appears in an enzoötic form, and recommends the name, *phlegmone periarticularis bovina.* He never observed the disease in new-born calves, but from the time they are a few weeks old, until their first year, frequently; in two-year-olds seldom; and after that age he never observed a case. From observations on sick animals, he established three stages. In the early stage, a slight circumscribed elevation is noticeable on the skin of a fore or hind leg, which gradually increases in size up to a cocoanut. The early stage, therefore, is nothing more than the appearance of inflammation and phlegmona, as the tumor is filled with pus. The pus has a specific odor, which V. considers important in establishing a diagnosis. The transformation of the tumor into an abscess is the second stage, when part of the pus is evacuated, which is of a yellowish-white, grayish-yellow, or reddish-yellow (mixed with blood) color, and always contains more or less fibrin fragments; later, part of the pus enters through the lymph circulation into the blood circulation, causing septicæmia, which results in death. This is the third stage of the disease, which might have also another termination, namely, when the virulency of the virus is lower, septicæmia does not develop, the animals live a longer time, during which the non-evacuated pus will sink deeper, reaching the bone and joint, causing anchylosis, to which a fistula leads, from which pus discharges with the specific odor. The author found in the pus a great number of bacilli, similar to the chicken cholera bacilli, but smaller and narrower. The ends of the small rods are rounded, and don't take the color as well in the centre as at the ends. According to V., these are the smallest of all known bacilli; smaller than those causing influenza. They dye with carbolic fuchsin (Ziehl's method) without heating. They only grow in an anærobic way; in bouillon under hydrogen; a slight sediment forms in 24 hours, and the culture has the characteristic odor of the pus. A sticking culture in agar agar consists of small grayish-white isolated colonies of a pearly shine, growing best at a temperature of 37° C.; the minimal temperature is 27° C., and grows yet in 40° C., but 50° C. destroys them in one minute. From the experimental animals, the guinea-pig, inoculated intraperitoneally,

dies in 24–48 hours from septicæmia, and the bacillus can be found in the serous fluid of the abdominal cavity, in the blood of the heart and in all organs. Inoculations with the filtrated bouillon culture (not containing the bacilli) did not produce the disease. The treatment is surgical, consisting in opening of the tumors and cleaning with disinfectants.—(*C. f. B. u. P. Erdos Veterinarius.*)

FRENCH REVIEW.

By Prof. A. LIAUTARD, M. D., V. M.

CONGENITAL ATROPHY OF BOTH EYES IN A FILLY [*Prof. Cadéac*].—The animal is a bay filly, two years old, congenitally blind. The eye-lids are atrophied, and do not completely close the eye; through them the orbital cavity is seen. The lower eye-lid has no eye-lashes and on the upper one the free border is turned inwards. This entropion, also congenital, keeps up an internal ophthalmia; the discharge is abundant and runs down on the face. The membrana nictitans, normally developed, fills up, so to speak, the orbital cavity. Instead of the cornea, there is a small, pedunculated mass, bluish, as big as a pea, which is covered with blood vessels on its surface. This mass on its basis is surrounded with a white circle, the sclerotic. The animal being killed, the muscles of the eye are found as big as in horses whose sight is perfect. The adipous pad of the eye is represented by a soft, yellow-brownish mass; there is no fat. On the brain, there is a marked atrophy of the optic nerves, which are flattened and reduced to half their normal size; they are made out only by their whitish coloration, which isolates them from the grey tint of the brain substance. As one looks on them closer to the orbital cavity, the atrophy is more marked; it is impossible to follow them; there is no retina. The atrophy of both eyes, with existence of the nictitans and of the ocular muscles, is explained by the different origin of the constituting portions of the ocular globe and of its annexes, and we can conclude that the atrophy of the optic body and of the eye-lids is exclusively due to an arrest of development.—(*Journ. de Zoötechnie.*)

FISTULA OF THE LEFT THIGH DUE TO FOREIGN BODY—OPERATION—RECOVERY [*P. Bergeon*].—A horse, while in harness, falls down, and one broken shaft enters his hind quarter.

Two wounds are made, one on the right haunch involving the skin and gluteal muscles, the other on the inside of the left thigh, smaller. The wounds seem slight, and a prescription is given for disinfecting washes, a dressing, and one injection of anti-tetanic serum. The right leg is soon cicatrized, but the left is still the seat of a fistulous opening, with a discharge of yellow pus. The fistulous tract is situated between the short adductor of the leg, the semimembranosus and semitendinosus. Suspecting a foreign body, the animal, too ugly to be handled standing up, is cast and secured for examination. A probe introduced into the tract, runs through the muscular mass of the leg for a length of 13 centimetres; it reaches a hard substance, slightly movable. With careful incision, the tract is enlarged and finally a splinter of wood, five centimetres long, is extracted. There was considerable hæmorrhage, which was, however, comparatively easily controlled by plugging. Antiseptic washings and dressings were followed by rapid cicatrization.—(*Revue de Zoötechnie.*)

VOLVULUS OF THE HORSE COMPARED TO THAT OF THE OX [*J. G.*].—From the close watching of this case it seems that "this intestinal lesion has had for characteristic symptoms a walking in a circle of the animal during the period of coma, a peculiar attitude when he stopped, characterized by the head carried low and the legs wide apart, and a special mode of lying down on his sternum and belly." The animal, 10 years old, does hard work; he is well kept and well fed. One night, a few hours after his meal, he is taken with violent colic. Obstruction is suspected. The animal does not lay on his back; he keeps rectal injections quite well, and when he rejects them passes a few softened fæces. Pulse is strong, somewhat accelerated, mucous membranes not congested. Pilocarpine and eserine have no effects, although given twice. The next day the animal passed into a comatose state, interrupted now and then with light colics. He remains for some time laying on his belly and on his sternum; when up he moves in a circle, makes several turns, looks at his flank, then stops with his head down close to the ground, extended forward, with his four legs apart from each other as though the animal was afraid of falling. This symptom is also noticed in volvulus of ruminants. At the post-mortem it was found that all the intestinal portion preceding the volvulus was much distended by gases. The portion that came after was depressed and empty. All around the lesion there was a gangrenous state of the intestine which, like the

corresponding part of the mesentery and of the cæcum, was very black. The volvulus was formed by an intestinal loop twisted into the shape of a sailor-knot neck-tie.—(*Progrès Veterin.*)

PECULIAR CASE OF OBSTRUCTION OF THE URETHRA IN A GELDING [*M. Dumoulin*].—Retention of urine being rare in horses, practitioners are likely to overlook the remark made when a horse has colic that "he cannot make water." Called to one case of colic, the author found the animal with anxious countenance, with severe pains, and now and then making violent expulsive efforts. In the peritoneal region, on the lower border of the anus there is a tumor as big as the two fists; it is the bladder, much distended with urine. Having no catheter, the author resorted to a long piece of wire, which he bent in two, and rolled the two parts upon each other, thus making a flexible probe, with which he was able to break up a mass of calcareous concretions gathered at the ischial curvature and preventing the escape of urine. Recovery was almost immediate. —(*Progrès Vétér.*) [A few months ago such a case occurred in my practice, the horse, a gelding, being the property of the Greenwood Cemetery Corporation. My assistant, Dr. Clarence E. Shaw, responded to a "hurry" call for colic, and upon examination of the patient found an enlargement, hard and stony, in the urethra, some three or four inches below the ischial arch. Confirming his suspicions of urethral calculus by introducing a catheter, he cut down upon the obstruction and removed a stone nearly as large as a walnut. The depth of the wound prevented suturing, and it was allowed to take the course of an open wound. Urine escaped through the opening for a few days, complete recovery taking place in two weeks.—(*Roscoe R. Bell.*)]

MUSCULAR SPASMS OBSERVED IN A HORSE AT THE BEGINNING OF VOLUNTARY MOTIONS [*M. Carougeau*].—What is the nature or the pathogeny of those manifestations, the author cannot tell, and merely reports the case for its great interest and character. It is an old horse, 15 years, whose history is not known, but which is shown to Mr. C. because lately he acts "singular"; he starts walking only after presenting a series of symptoms very peculiar. When he is excited to go ahead or go back, a general rigidity, almost tetanic, takes place, and during several minutes renders all movements impossible. The whole muscular system is in contraction. The muscles of the neck, of the legs, forward and behind, contract suddenly; a motion forward is about to take place, but is immediately arrested; all the muscles are contracted. These manifestations are observed

also in the muscles of the head; the lips, nostrils, eyelids and the ears are agitated by a few spasms and then become rigid; hence a peculiar expression of deep anxiety. This general condition does not last long, 20 or 30 seconds; then the contraction relaxes and the animal can walk. At first his steps are irregular, the legs are thrown forward and outward as in cases of locomotor ataxia. Finally, after a few steps, in three or four minutes, everything is again normal; all the spasms have disappeared, and will not return unless the animal is stopped, takes a moment of rest, when with a new excitation, a new call to start, the same series of symptoms will return. The attacks do not seem painful, but no matter how frequent they may be, they always have the same intensity. During the contractions the muscles are hard and prominent. They are more sensitive to the prick of a pin or a blow. This collection of symptoms does not correspond to any well-defined disease. It is, however, incurable. Antispasmodics have remained as useless as stimulants, and bromide of potassium did no better than strychnia.—(*Soc. des Sc. Veter. de Lyon.*)

FISTULA OF THE INFERIOR MAXILLARY—ODONTITIS, ALVEOLAR PERIOSTITIS, AND OSTEO-PERIOSTITIS [*M. Jean*].—Seven-year-old horse, in good condition, but having a fistula of the lower maxillary bone, following an incomplete fracture of the bone, which has given rise to periostitis and caries of the first lower molar. The bone is swollen, the fistula is located near the neck of the bone, a little forward of the dental foramen. The gums are swollen, the tooth seems healthy, but there is a strong odor of caries. The probe introduced in the fistula reaches the root of the tooth, and when it is taken away it is covered with pus, having a bad smell. The tooth was extracted, the animal thrown, with well disinfected instruments. The molar is free from caries; the root only has a few granulations, showing that it partook of the alveolar inflammation. In the alveola, it is found that the anterior part is ready to slough off, by necrosis. It is removed. The superior border of the internal wall of the alveola is scraped. The thermo-cautery is introduced in the fistulous tract to promote healthy repair and stop the hæmorrhage. Recovery went on slowly with ordinary care and without complications, leaving no soreness of the mouth afterwards.—(*Rec. de Med. Vet.*)

DR. J. C. CALLENDER, Parkersburg, W. Va., has just completed and occupied a modern veterinary hospital, of brick, and with all the conveniences of the best of such institutions.

ITALIAN REVIEW.

By Prof A. LIAUTARD, M. D., V. M.

PECULIAR CASE OF FRACTURE OF THE PELVIS IN A MARE [*Dr. F. Gonnelli*].—Conditions of fractures are generally in proportion to the violence of the injury or the mode of application, but yet there are cases where the veterinarian cannot always explain the results of the injury. This is demonstrated by the following case: A mare of three years of age, being turned out in a field, came across a little stream about one metre deep and sixty centimetres wide, which she attempted to jump. In so doing her hind legs slipped, she fell down and was unable to get up. She could well raise her forequarters, but it was with great difficulty that she was gotten up, the help of two strong men being required to prevent her from falling. She had to be transported to a stable close by. It was evident that she had a fracture of the left hip. She also exhibited some symptoms of internal hæmorrhage. She received some treatment to that effect and was left comfortable. The next day she seemed to have passed a good night, although she was lying down. She ate well. An hour after she was dead. At the post-mortem the lesions found were extremely interesting: On *the left side*, there was complete fracture of the internal angle of the ilium, of the two ilio-ischiatic, and ilio-pubic symphysis, with displacement of the iliac bone; no luxation of the coxo-femoral joint, as the coxo-femoral ligament was intact. On *the inferior median line*, luxation of the ischio-pubic symphysis, with partial displacement of the ischiatic bodies. On *the right side*, complete fracture of the internal angle of the ilium, fracture of the pubis and of the ischium, involving the foramen ovale and resting on the anterior portion of the corresponding coxal bone. *Internally*, the pelvic cavity full of blood, the uterus, bladder and rectum with large hæmorrhagic spots, the right iliac vein torn by the fractured pubis. There were also blood extravasated at the internal face of the coccy, under the femoral aponeurosis and towards the natural and artificial openings of the pelvic cavity.—(*La Clinica Veterin.*)

A SIMPLE AND CERTAIN METHOD OF COLORATION OF THE BACILLUS OF BOVINE TUBERCULOSIS [*Dr. G. de Angelis*].—The following is considered by the author as a simple, certain and practical method, with which he has never failed to detect the microbe. Four solutions are required: (*a*) Pure ammonia,

20 c.c., in distilled water, 40 c.c., filtrated and limpid. (*b*) Saturated alcoholic solution of violet of gentian (Gluber). (*c*) Sulphuric acid, 10 c.c., in distilled water, 40 c.c., filtrated with care. (*d*) Saturated alcoholic solution of crisoidine (Merck). The material to examine being put on a slide and pressed by another, which has been laid on it vertically, so as to leave but a very thin layer of substance between, is allowed to dry in the thermostat or in the air, and passed through fleames as in other methods. Three parts of solution (*a*) are mixed with 7 of (*b*) and poured over the preparation examined, heated by the lamp to boiling point and appearance of a splendid metallic gilded tint. After thorough cooling, wash freely and leave it in vertical position to get rid of all the water. Pour one drop of solution (*c*) so as to cover the colored part, wash thoroughly until the violet color has disappeared and the liquid assumes a clear yellowish tint with slightly greenish hue, and for 1–2 minutes let the solution (*d*) act. Wash then with alcohol and allow it to dry thoroughly. When the preparation is mounted, the bacilli are detected in the field of a handsome golden color and observed colored violet with all their typical and specific characters.—(*Il Nuovo Ercolani.*)

A Case of Cerebellar Echinococci in a Steer [*Dr. G. de Angelis*].—Rare case, adding to the history of this parasite in bovines. The animal was a steer which had presented such peculiar head symptoms that he had to be kept tied up close and placed in slings. He had worked well previously, but for some three months had carried his head low down and staggered more or less in walking. Now he is almost paralyzed behind, keeps his hind legs stretched backwards as if he wanted to micturate; the head is resting against the wall, the eye is staring, stupid like, the conjunctivæ are red, and saliva flows freely from the mouth. Now and then he has general trembling all over the body, sometimes he appears comatous and again as in delirium. The case was diagnosed as one of acute hydrocephalus, and as the animal was in good condition he was slaughtered. At first at the post-mortem a special condition of irritation of the digestive organs seemed to show an error of diagnosis, but when the cranial cavity was observed, it was another story. A large tumor was then exposed, occupying the entire subarachnoid space and resting on the cerebellum. This tumor consisted of a large cyst (mother-cyst), within which others were either attached or floating in a clear, limpid fluid, and which, with examination under the microscope,

proved to be cysts of echinococci. — (*Il Nuovo Ercolani.*)

A SINGULAR CASE OF HÆMOGLOBINEMIA IN A HORSE [*Dr. Umberto de Mia*].—A seven-year-old horse in the winter of 1900 began to lose his appetite; the owner had him bled, but as no improvement was noticed, it was decided to lay him off in the stable altogether during the following summer. His food consisted of good hay from natural prairies, oats, corn, etc. During the month of August, 1901, a very cold wave, lowering the temperature by several degrees, struck the place. When it occurred the horse had already been several days in his stable, when after five days an extensive cutaneous hæmorrhage was observed on the chest, but more specially on the knees and the hocks. This lasted about seven days, when it all ceased. Frightened on seeing the blood, the owner wanted to take the animal out, but found him so lame on the right fore and left hind leg that he had to leave him in the stable. Then the horse showed some intestinal pains and had borborygms. The pains were at times very violent, and then again would pass off entirely. The borborygms lasted for several days. There was no mark of myositis, but synovitis of the great sesamoid sheath of the fore leg. The lameness of the hind leg lasted only a few hours; that of the fore leg was more severe, as the horse was unable to stand his foot on the ground. The appetite was very capricious, the pulse, 60 at first, dropped to normal. The temperature varied between 38° and 39.5°. On September 1, the horse had a small epistaxis; the following day threw blood per mouth; he had croupal pharyngitis. The treatment consisted in bicarbonate of soda and nux vomica, with local applications to the synovitis.—(*Il Nuovo Ercolani.*)

AN UNCOMMON CASE OF CRAMPS IN A FILLY [*G. Fogliata*]. —The condition generally considered as cramps of the muscular apparatus of a hind extremity and commonly understood as pseudo-dislocation of the patella, is an affection met quite often in horses, and, according to the author, more frequently among young animals. Whatever are the causes of the appearance of the symptoms, the subject of this record is evidently most singular because of both its etiological (?) and clinical forms. A filly after a racing season was, as it is customary with some racing stables, submitted to a purgative treatment and received a drastic. As soon as the action of the purgative began, a cramp of the left hind leg became manifest with all its classical symptoms. Simple treatment, frictions on the stifle and upon the muscles of the patella, seemed to bring on a good recovery and in four hours

the cramps had all subsided. During the winter, a few months after this first attack, the filly was to be prepared for the spring work, and with the other animals of her stable received another dose of aloes. Twelve hours after taking the medicine, both hind legs were taken with cramps, contraction of the muscles, displacement of the patella, etc. The right leg became relieved spontaneously, but for the left it required manipulations on the joint, frictions, and the administration of laudanum. It lasted six hours. After some time, this same filly was to have some operation performed on her, and so as to prepare her for it, she for the third time received a dose of aloes. Again the same symptoms reoccurred, but at that time they were much more severe; the animal was in great pain, and had almost the appearance of a tetanic patient, so great were the excitability and the rigidity of the muscles. This case lasted fourteen hours, and was relieved by the same means.—(*Giornale d'Ippologia*).

ARMY VETERINARY DEPARTMENT.

This new REVIEW department was opened in the last number (March, 1903), and its object was there explained—the betterment of the Army Veterinary Service, through affording a forum for the discussion of subjects in which army veterinarians are deeply interested, and which are at the same time of interest and value to veterinary readers generally. The profession, and particularly army veterinarians, are invited to contribute communications, original articles, items of news, etc.

"A DISEASE RESEMBLING GLANDERS IN THE PHILIPPINES."

FORT ASSINABOINE, MONT., March 14, 1903.

The note reprinted in the last issue of the REVIEW from the *Manila Times*, under the above heading, constitutes another instance of the blissful ignorance of our worthy medical colleagues as regards veterinary topics. If the government bacteriologists are so eager to draw animal diseases into the domain of their research, they should become acquainted with our current veterinary literature in order to avoid post-date discoveries and sensational reports.

The "startling discovery" of Dr. R. P. Strong, director of the biological laboratory in Manila, that "more than 50 per cent. of cases which have been treated as glanders, are not glanders at all," is humorous reading to army veterinarians who have been

serving in the Philippines. As early as November, 1900, an official report about this disease was forwarded by me to the A. A. Adjutant-General at Vigan, P. I., calling attention to the fact that several officers in charge of army animals had mistaken this disease for farcy, warning against a premature destruction of such suspects. A concise, but more scientific description of this disease under the name of "tropical ulcers of horses" (African farcy), was prepared for the A. V. REVIEW in 1901, but its publication was deferred until May, 1902, in order to secure a good photograph of the characteristic lesions of the disease, which the readers will find in that issue. A good description of the disease was also given by Dr. C. Nockolds, 1st Cavalry, in the A. V. REVIEW of November, 1902, under the name of "ulcerative lymphangitis."

While Dr. Nockolds and myself do not agree on several points, I am confident that we shall straighten out our divergencies of observation and conclusions in this journal. But how are we going to correct the errors of Dr. Strong, to whom the AMERICAN VETERINARY REVIEW is evidently unknown. He exaggerates in his description of the disease, because he has evidently only seen fully developed and severe cases, which are rather exceptional and do not convey the clinical picture of the ordinary form of this disease, so commonly met with in army stables in the Philippine Islands. He cannot possibly have the opportunity to observe and study the early beginning of the disease, and, if so, I doubt that he could see what an experienced veterinarian would see. If he had confined himself to the bacteriological study of the disease he would have had a chance to discover or rediscover the specific germ of these specific ulcers, which was neither seen by Dr. Nockolds nor by myself, yet which must be there. But when he oversteps the limits of his knowledge and draws a clinical picture of a horse-disease and steps into a dissertation on differential diagnosis and veterinary therapeutics, he blunders badly and dangerously.

The trumpet-sounds from the army-pathological laboratory at Manila that "glanders" was not glanders but "surra" have already done their ruinous work in checking the stamping out of the real, old-fashioned glanders among army horses in the Philippines, and now comes the bacteriologist of the Government Board of Health and proclaims in his over-confidence that "farcy" is not farcy in more than 50 per cent. of cases, but "probably a variety of lymphangitis epizoötica." Yet, this disease never starts as a lymphangitis, but only occasionally re-

sembles it as it resembles farcy in exceptionally severe cases.

We shall more fully review the different descriptions of this disease in a near issue, as it is about time that we agree at least on its correct name. To-day I only wish to reduce this "startling discovery" to its true history as far as its existence in the Philippines has been known to us for nearly three years.

OLOF SCHWARZKOPF.

ARMY VETERINARIANS AND SIDE ARMS.

The Army and Navy Register of February 21, 1903, contains the following note:

"The War Department has rendered an important decision. It is now held that veterinarians of light Artillery and Cavalry are entitled to wear side arms. There has been a difference of opinion on this subject and, strange to say, the matter was never officially brought to the attention of the War Department until recently. The ruling now settles the question beyond dispute and veterinarians may take their place with commissioned officers with the privilege of wearing side arms."

This decision has not been promulgated throughout the army, so that it may be presumed to have been rendered in the form of an official reply to an individual inquiry. Veterinarians who have been serving in the Philippine Islands will be rather surprised that such decision was deemed necessary by somebody. During the period of insurrection the veterinarians had to visit the different stations of their regiments, compelling them to march through towns and barriers infested by insurrectors. As our military escorts consisted seldom of more than two to four soldiers with a pack-mule, we were just few enough to be easily surrounded and captured. Army veterinarians are not protected in war by the rules of the Geneva convention, as army surgeons are, thus we had to be prepared to defend our lives or resist capture. The writer preferred to wear a sabre, which he knows how to handle from his student days, while Dr. Gelston, 3d Cavalry, had a carbine slung on his horse in soldier style. There were no orders given to us what to wear, but necessity demanded it. If, then, army veterinarians have to use arms in time of war, they should get used to them in time of peace. Moreover, as the veterinarian of Cavalry rides with the regimental staff on mounted inspections and reviews, he is simply obliged to wear a sabre on this occasion as on all other occasions where he may appear with officers wearing side arms.

Some of us should cease asking questions which are understood by the military code the world over, and if we ever expect to be thoroughly respected in the U. S. Army we must be military in our appearance and attentive to military customs. O. S.

LIST OF VETERINARIANS OF CAVALRY AND ARTILLERY, U. S. ARMY.

1st Cavalry.—1. Coleman Nockolds, 1st Cavalry, Manila, P. I.; 2. Vacancy.

2d Cavalry.—1. William V. Lusk, Fort Myer, Va.; 2. Vacancy.

3d Cavalry.—1. Olof Schwarzkopf, Fort Assinaboine, Montana; 2. Samuel L. Gelston, Fort Assinaboine, Montana.

4th Cavalry.—1. Alexander Plummer, Fort Riley, Kansas; 2. Vacancy.

5th Cavalry.—1. Robert S. van Agnew, Manila, P. I.; 2. Vacancy.

6th Cavalry.—1. Sidney L. Hunter, Fort Leavenworth, Kansas; 2. Jules H. Uri, Manila, P. I.

7th Cavalry.—1. Joseph R. Jefferis, Chickamauga Park, Ga.; 2. Vacancy.

8th Cavalry.—1. Ray J. Stanclift, Jefferson Barracks, Mo.; 2. Harry F. Steele, Fort Sill, Oklahoma Ter.

9th Cavalry.—1. S. Glasson, Jr., Presidio of San Francisco, Cal.; 2. John Tempany, Fort Walla Walla, Washington.

10th Cavalry.—1. C. D. McMurdo, Fort Robinson, Nebraska; 2. S. W. Service, Fort Robinson, Nebraska.

11th Cavalry.—1. Alex. McDonald, Manila, P. I.; 2. John H. Gould, Manila, P. I.

12th Cavalry.—1. William P. Hill, Fort Clark, Texas; 2. Vacancy.

13th Cavalry.—1. Charles H. Jewell, Fort Meade, S. D.; 2. Walter Fraser, Fort Meade, S. D.

14th Cavalry.—1. Henry W. Peter, Fort Grant, Arizona; 2. Vacancy.

15th Cavalry.—1. W. R. Grützman, Manila, P. I.; 2. Christopher J. Willgans, Manila, P. I.

Artillery Corps.—1. Gerald E. Griffin, Fort Sheridan, Ill.; 2. Daniel LeMay, Fort Douglas, Utah; 3. Frederic Foster, Fort Ethan Allen, Verm.; 4. R. B. Corcoran, Presidio of San Francisco, Cal.; 6. William A. Sproule (recently appointed); 7. Lester E. Willyoung (recently appointed); 8. Fred. B. Gage (recently appointed).

Besides these regularly appointed veterinarians of Cavalry and Artillery, there are engaged about forty to sixty contract-veterinarians, most of them in the Philippines. The names of these contract-veterinarians are not given in any army list or register, as they are civil employés.

ARMY VETERINARY DEPARTMENT NOTES.

Human Instruments for Army Veterinarians.—At a recent issue of veterinary supplies according to the new veterinary supply table, human hypodermic syringes and post-mortem cases have been furnished. Especially the former instrument is useless for veterinary practice except, perhaps, in the treatment of private dogs of officers, for which they were hardly intended. If similar issues have been made to other posts, veterinarians should promptly forward an official communication to the Quartermaster-General, U. S. A., through military channels, in order to have such instruments returned and exchanged.

Sailed for the Philippines.—Dr. Daniel LeMay, Vet. Artillery Corps, U. S. Army, writes from Fort Douglas, Utah, under date of March 14th: Veterinarians Walter Fraser, 13th Cavalry; Wm. R. Grützman, Christopher J. Willgans, 15th Cavalry, and Fred. B. Gage, Artillery Corps, sailed on the U. S. Transport *Logan* from San Francisco, Cal., to Manila, P. I., Feb. 28th, 1903.

BIBLIOGRAPHY.

PROCEEDINGS OF THE AMERICAN VETERINARY MEDICAL ASSOCIATION, SESSION OF 1902. Edited by the Publication Committee, M. H. Reynolds, Chairman, St. Anthony Park, Minn.

About the first of January the well-printed and neatly-bound volume of the "Proceedings" was mailed to each member of the National Association, and they are thus enabled to place in their libraries a faithful record of the splendid meeting of 1902. Next to actual attendance upon the annual meetings is the pleasure and profit to be obtained from a perusal of this yearly record. While the present volume is similar in most respects to those of the past few years, a number of new features have been added which make it a more valuable reference book, while the papers and discussions are presented in a very clear and comprehensive manner. The committee has compiled and printed in the first section of the book a list of the meeting places of the A. V. M. A. from its organization, at the Astor House, New York City, June 9 and 10, 1863, until the 39th annual gathering at Minneapolis. Semi-annual meetings were held until

1890, when they were discontinued, and the number of days devoted to the annual meeting increased. For the first 20 years they were held alternately in New York and Boston, the membership being confined to the veterinarians of the Eastern States. What a great advance there has been when one peruses the minutes of the early meetings, and then goes through the 346 pages constituting the story of the last meeting. The very few now living who were present at the Astor House meeting must feel a great satisfaction when they reflect upon what good and productive seed were sown on that memorable occasion, while the memories of those who have gone should be held in veneration by the great organization which now occupies the distinction of being the largest in the world, as well as the most influential in the English-speaking countries, at least. The amount of labor bestowed upon the preparation and supervision of the "Proceedings" by Chairman Reynolds is probably not sufficiently appreciated by the membership. The preparation, pruning and correction of manuscript, the arranging of the minutes, to say nothing of the reading of proofs, etc., is an arduous, tedious and thankless work that not every one has the ability to perform, while fewer have the inclination to sacrifice their time and energies to its accomplishment. Dr. Reynolds is entitled to a "tablet in the hall of fame," and he would be greatly missed if he were unwilling to continue at this post. Not a murmur has come from him, but such labor should be appreciated and one so capable should be encouraged to feel that he was accomplishing a service to his profession and colleagues.

CORRESPONDENCE.

THAT PURE WHITE FOAL.

HILLSBORO, OHIO, Feb. 27, 1903.

Editors American Veterinary Review:

DEAR SIRS: — Have just finished reading the February REVIEW, and I note the inquiry by Dr. Bell at the top of page 1091 as to whether anyone had ever seen a *pure* white foal. A Mr. McGeehan, of Sinking Springs, near here, some years ago had a beautiful pure white colt foaled, very well developed, with the exception that there was not the *least* sign of fore legs. It lived about a week or two. The hair was regular and straight, and the skin perfectly smooth. It was a beautiful specimen. He had it mounted. Very truly yours,

S. R. HOWARD.

SOCIETY MEETINGS.

WISCONSIN SOCIETY OF VETERINARY GRADUATES.

The annual meeting took place in the club rooms of the Avenue Hotel, at Madison, at 3 P. M., February 4th, 1903, and was called to order by the President, J. F. Roub, and the following members answered to roll-call; S. Beattie, J. W. Beckwith, C. M. Crane, C. E. Evens, H. F. Eckert, G. H. Fay, L. M. Jargo, G. E. Leech, W. J. Malone, E. H. Newton, J. F. Roub, E. D. Roberts, D. Roberts, T. A. Schneekloth, Chas. Schmitt, S. S. Snyder, and one visitor, Dr. A. J. Alexander.

The minutes of the last meeting were read and accepted.

The Secretary's and Treasurer's reports were read and accepted.

On motion an auditing committee was appointed by the Chair to examine the books of the Secretary and Treasurer. The President appointed Drs. Schmitt, Evens, and Beckwith, who examined the books and signed them as correct.

Dr. G. H. Fay, an early member of this Society, who has discontinued practice for a time, applied as a new member. It was moved and seconded that Dr. Fay be accepted as a new member by paying membership fee of $3 and one annual due of $2 for the year 1903. Carried. Dr. Fay responded by thanking the Society for the action they had taken and promised to become an active member.

The subject of holding our next semi-annual meeting in Milwaukee was lively discussed by Drs. Schmitt, Evens, Roub and Beckwith, which resulted in a motion that was seconded that we hold our next meeting in Racine. Carried.

Dr. Alexander addressed the meeting by a nice little talk on horse feed and horse feeding, which he sweetened at the beginning with molasses, but as the doctor proceeded to illustrate the disadvantage of using molasses as food for horses and its inferior value as compared with good oats, that sweetness turned to bitterness in a decision against molasses.

On motion a vote of thanks was extended to Dr. Alexander.

On motion the Society adjourned to meet at 7.30 P. M.

Evening Session.—The Secretary read a bill relative to prohibiting the importation of Western branded horses into Wisconsin by State Veterinarian Roberts without a veterinary inspection, as a great deal of glanders and other contagious diseases

is brought East by this class of horses, and a change was proposed that in place of Western branded horses it should read Western horses branded or otherwise.

The President, in view of the fact that several members had violated the Code of Ethics by placing on the market proprietary remedies, asked the Secretary to read the Code, which was read and discussed by all members present.

Motion was made and seconded that the Chair appoint a committee of three members to revise the Code of Ethics and make them more lenient. Carried. The Chair appointed Drs. R. S. Heer, G. H. Fay and S. S. Snyder. It was moved and seconded that the committee report at our next meeting. Carried.

The Secretary read a bill framed by the Committee on Legislation for the purpose of establishing a Veterinary Examining Board, also a letter from Supt. Whitehead advising the substitution of medical doctors on that board in place of veterinarians. On motion, the Secretary was instructed to answer Mr. Whitehead's letter declining to change the original bill.

Dr. R. S. Heer read an excellent paper on "External Ulcerative Ano-Vulvitis in Cattle," which was discussed by Drs. D. Roberts, Alexander, Leech and Schmitt. Dr. Beckwith reported a similar outbreak in his own herd.

Dr. Snyder reported a peculiar case of influenza in a horse, in which the animal had intermittent attacks for several weeks of digestive trouble, which was discussed by Drs. D. Roberts, Alexander and Leech.

On motion, the Society proceeded to the election of officers, which resulted as follows:

President—Dr. S. S. Snyder, Cedarburg.

Vice-President—Dr. R. S. Heer, Platteville.

Secretary—S. Beattie, Madison.

Treasurer—Dr. Chas. Schmitt, Dodgeville.

Censors—Drs. J. W. Beckwith, G. H. Fay, and H. F. Eckert.

Dr. E. D. Roberts reported several outbreaks of rabies throughout the State, which was discussed by several members.

Dr. Leech, who is an honorary member, moved that the Society accept his usual annual dues. The motion was seconded and carried.

Motion was made and seconded that the Society uphold the just acts of the State Veterinarian. Carried.

On motion, the Society adjourned to meet at Racine subject to the call of the President and Secretary.

S. BEATTIE, *Secretary.*

ILLINOIS VETERINARY MEDICAL AND SURGICAL ASSOCIATION.

This association met in annual session at the St. Nicholas Hotel, Decatur, Ill., Jan. 14th and 15th, 1903, and was called to order by President Dr. V. G. Hunt, of Arcola, Ill. Following the roll-call, which was responded to by a goodly number of the membership, President Hunt delivered an exceedingly interesting and very instructive address, which was warmly applauded, and was as follows:

"*Gentlemen:*—As we meet to-day, we may well rejoice at the rapid strides made by the profession within the last few years. The profession no longer pins its faith to theories that cannot be demonstrated. Nothing but absolute fact will satisfy. Every veterinarian is doing some original thinking and does not rush into print with a new discovery, until it has been demonstrated to be practical. Drugs have become so cheap, that the veterinarian can give our domestic animals the benefit of all new and best remedies with comparatively small cost. What an advantage the young man to-day has over the old practitioner who gained his knowledge thirty years ago. While he was in practice, he had to be a diligent student to keep up with the times. Necessity kept him on the alert, but to-day the novice has his text books, his lectures, last, but not least, his veterinary journal, and if Dame Nature has been liberal with brains, he will make a success.

"We see by our dailies, that in the East that terrible foot-and-mouth disease has invaded their territory. The veterinarians are already on the ground and we trust will stamp it out. The utmost precaution will always be necessary from the fact that to improve our flocks and herds importations from infected districts must be made in spite of the danger. The veterinarian must be on the alert, not to pose as an alarmist, but where the symptoms are imperfectly developed use every precaution to insure the safety of the herd, even if his worst fears were never realized. The veterinarian of to-day has diseases to contend with that were little known thirty years ago, some of which are of such a malignant character they must be met in their incipiency or a fearful loss will be the result. Most liberal appropriations will have to be made, to meet the necessary expense. Conditions are constantly changing that will require nice diplomacy to not inflict a hardship on unfortunate owners in infected districts. Then the veterinarian with practical experience, coupled

with a clear head, will do his duty without fear, favor or affection.

"All Europe is watching our live-stock interests with a jealous eye and will look with no degree of composure, which will require us to be alive to our individual interests. Our exports to other climes are immense. We can hardly conjecture what they will be within the next decade. Let us hope we may meet every emergency, so American interests will be subserved.

"Our late veterinary law without doubt has not met the expectations of its authors, unless the fee was the focus of their thoughts and the height of their ambition. Be this as it may, in many localities quackery is as prevalent as ever. Let us hope in the near future the stock owner himself, unaided by State legislation, will give each practitioner his proper place. Individual interest is a wonderful safeguard. True merit will eventually win. Glittering theories are very inspiring, but avail but little in the sick stall. Here is where the true veterinarian shows his skill. We trust our beloved profession in the near future will reach that perfection that our domestic animals will be treated on the same intelligent basis as his lordly master. We owe this to that all-wise Creator who placed them in our care. When sick do not fly to some therapeutic arsenal for a remedy, without any thought as to their ailments. Is it to be wondered at if he loses his valuable animal under these circumstances? Is it any wonder the public becomes disgusted at the impotency of the healing art? One writer has truly said: 'Medicine in incompetent hands is like a sword in the hands of a mad man.'

"The world is full of vain pretenders with a hæmorrhage of words, gaudily dressed, for a time capable of deceiving the very elect. This forcibly reminds us of a $40 harness on a $20 horse, but all they have to do is to move a little farther along and catch another sucker. Thus it has been and will be, to the end of time.

"The conscientious veterinarian realizes his ability and never dreams of trickery, is strictly honest with his patrons and enjoys their well-merited confidence.

"Now, in conclusion, let me most heartily thank you for your most valuable help while President of your society, and in retiring will hold every member in grateful remembrance, hoping their usefulness will increase with their years, hoping and trusting my successor will receive the same valuable support, so generously extended to me. May the society be inspired with new

life by a younger man. Our society has a world-wide reputation, capable of doing much good, located in one of the richest agricultural districts on the globe. Its inhabitants represent every civilized country on earth and the very best of them. Need we fail under such circumstances?"

The minutes of the previous meeting were then read and approved by the Association.

The election of officers for the ensuing year followed and resulted as follows:

President—Dr. V. G. Hunt, Arcola, Ill.
First Vice-President—Dr. A. Travis, Litchfield, Ill.
Second Vice-President—Dr. F. D. Bliss, Earlville, Ill.
Secretary—Dr. W. A. Swain, Mt. Pulaski, Ill.
Treasurer—Dr. J. M. Reed, Mattoon, Ill.

Three new members (Dr. H. P. McKinney, Neoga, Ill.; Dr. C. F. Griffin, Newman, Ill., and Dr. F. D. Bliss, Earlville, Ill.) were duly elected, after passing the requisite examination, and were introduced to the members by the Secretary.

The following standing committees were appointed by the President:

Committee on Membership—Drs. S. H. Swain, J. M. Reed, A. Travis, C. A. Hurlbutt and W. C. Dawson.

Committee on Programme—Drs. V. G. Hunt, W. A. Swain and S. H. Swain.

Committee on Arrangements—Drs. V. G. Hunt and F. Glassbrenner.

Committee on Legislation—Drs. John Osborne, V. G. Hunt, S. H. Swain and C. A. Hurlbutt.

The following papers were read: "Retained Fœtal Envelopes," by Dr. J. M. Reed, of Mattoon, which was very instructive and interesting, and was responded to by Drs. V. G. Hunt and S. H. Swain. "Œsophageal Obstruction," by Dr. C. A. Hurlbutt, of Stonington, Ill., was treated of in a most creditable manner. "Persistency of the Urachus," Dr. S. H. Swain, of Decatur, a very concise and instructive paper on the subject, which was responded to by Drs. J. W. Marsh and C. A. Hurlbutt. Dr. John Osborne next read a most entertaining paper on the subject of "Vegetable Poisoning, Milk Sickness," which was responded to by Dr. V. G. Hunt and others. The subject of "Parasitic Bronchitis" was next treated of by Dr. J. W. Marsh, of Illiopolis, in a very interesting and instructive manner. He was responded to by Drs. S. H. Swain and F. D. Bliss.

Under the head of "Reports of Cases," Dr. A. Travis, of

Litchfield, read a report of an operation for scrotal hernia, which was well received and discussed at length. Dr. W. A. Swain, of Mt. Pulaski, reported a case of "Fungosis Toxicum Paralyticus" in his practice, which was of more than passing interest and brought forth some animated discussion. "Cerebro-Spinal Meningitis," by Dr. V. G. Hunt, and many other extremely interesting subjects were discussed.

Among the visitors present were: Drs. Ansell Gould, Bone Gap, Ill.; J. B. Edgar, Ivesdale, Ill.; A. Robertson, Mt. Carmel, Ill.; John Turrell, Mackinaw, Ill.; Chas. E. Howard, Lebanon, Ill.; P. L. Stombaugh, Altamount, Ill., and W. Smith, Tinley, Ill.

The date and place of the next meeting was fixed for August 12th and 13th, 1903, at Decatur, Ill.

Meeting adjourned until the above date.

W. A. SWAIN, *Secretary.*

THE VETERINARY ASSOCIATION OF MANITOBA.

The annual meeting of this association was held in the city of Winnipeg, on February 19th, the President, Mr. S. A. Coxe, in the chair. The following members were present: S. A. Coxe, President, Brandon; C. Little, Winnipeg; C. McGilvray, Binscarth; J. A. Stevenson, Carman; A. M. Livingstone, Melita; W. A. Hilliard, Minnedosa; W. R. Taylor, Portage la Prairie; H. F. Whaley, Glenboro; W. E. Martin, Winnipeg; W. Harrison, Glenboro; J. Welch, Roland; W. S. Henderson, Carberry; F. Torrance, Winnipeg; W. J. Hinman, Winnipeg; R. Frame, Treherne; M. B. Rombough, Morden; W. Swinerton, Carberry; W. A. Dunbar, Winnipeg; A. E. Williamson, Winnipeg; E. P. Westell, Winnipeg.

The report of the Secretary-Treasurer and Registrar showed the Association to be in a flourishing condition, the total membership 77.

The election of officers resulted as follows:

President—W. R. Taylor, Portage la Prairie.

Vice-President—G. Hilton, Portage la Prairie.

Secretary-Treasurer and Registrar—F. Torrance, Winnipeg.

Council—Messrs. Torrance, Stevenson, Coxe, Hilton, Taylor, Henderson and Martin.

A grant of $100 was made to the central committee at Ottawa as a contribution towards the expense of entertaining the A. V. M. A.

Dr. C. D. McGilvray read an interesting paper on "The Physical Examination of the Sick Horse." The essay showed evidence of careful preparation, and the essayist received the thanks of the Association, and was awarded the prize offered at the last meeting.

It was decided to hold the semi-annual meeting at Portage la Prairie, the date to be fixed by the executive.

F. TORRANCE, *Secretary-Treasurer.*

NORTH CAROLINA VETERINARY MEDICAL ASSOCIATION.

This association met in Raleigh, N. C., on January 26th, 1903, in Dr. Tait Butler's office. There were several enthusiastic veterinarians present. The only business of importance transacted was the appointment of the Legislative Committee, and the drawing up of the Veterinary Bill to present to the Legislature. The meeting then adjourned, to meet in Wilmington, N. C., in July.

The Legislative Committee, composed of Dr. Thos. B. Carroll, Dr. Tait Butler, Dr. W. C. McMackin and J. W. Petty, went to work at once with the legislators, in the interest of the bill, and finally succeeded in getting it passed. The bill requires the Governor to appoint five of the members of the Association a Board of Veterinary Medical Examiners to examine all applicants to practice veterinary medicine and surgery.

We feel very much encouraged over our success, and hope that at the next Legislature to have some laws passed pertaining to the control of contagious diseases, especially as to meat and milk inspection, etc. J. W. PETTY, *Secretary.*

ALUMNI DINNER.—At a meeting of the Executive Committee of the Alumni Association of the American Veterinary College, held on March 19th, a dinner committee was appointed to complete arrangements for an alumni dinner, to be held in conjunction with the Alumni Association of the New York-American Veterinary College, at the Hotel Marlborough, April 2d, 7 P. M., and the prospects look bright for a hearty turnout. The two associations will hold meetings at the college building, 141 West 54th Street, in the afternoon of the same day.

FRANK BRIARD, a third-year student at the University of Pennsylvania, died at the University Hospital, Jan. 3, after ten weeks' illness from acute articular rheumatism, complicated with endocarditis. He was a native of Jersey, England.

NEWS AND ITEMS.

D. A. PIATT, M. D. C., V. S., Lexington, Ky., has occupied his new infirmary on South Broadway. It is well located, near the Fair Grounds, where there are 500 horses in training, besides S. T. Harbison & Co.'s large sale stables.

AT the recent annual meeting of the Iowa State Veterinary Medical Association, twenty-two new members were elected, and three who had been been suspended for non-payment of dues were reinstated, making twenty-five accessions to membership.

"JINGO," the largest elephant in the world, successor to "Jumbo," for twenty years at the Zoölogical Gardens of London, was recently purchased by Bostwick, the menagerie owner, for $50,000, and shipped to New York. He died of sea-sickness when in mid-ocean.

NEBRASKA'S LAW.—"You will probably be pleased to hear that the prospects for the passage of our Veterinary Bill, introduced in the House of Representatives, seems to be good at this time, and we hope to see it become a law."—(*G. R. Young, D. V. S., Omaha, Neb.*)

VETERINARIAN EUGENE BURGET, formerly of New York City, where he was a business partner of Dr. James L. Robertson and who retired from practice some five years ago and removed to the West, has received the Republican nomination for Mayor of Wadsworth, Ohio. He is a graduate of the American Veterinary College.

ISAAC H. DAHLMAN, who prior to a dozen years ago was for a quarter of a century the most extensive dealer in horses in this country, located in the Bull's Head Market, New York City, and known to horsemen throughout this and other countries, died at his home in New York City, last month. Although possessed of great wealth fifteen years ago, he was a poor man at the time of his death.

NOW there are horses at Hot Springs, Ark., taking the "boilingout cure" to get rid of sundry ailments of the rheumatic order. One race horse is there from the East which is so much better that it is thought the treatment may ultimately enable him to race as well as he did when a two-year-old. This horse went all to pieces as a three-year-old on account of some rheumatic affection, and the veterinarian in charge suggested that perhaps the baths might do him good. The horse gets bathed in water at 106 degrees each day and is then thoroughly dried.—(*Breeder's Gazette.*)

PUBLISHERS' DEPARTMENT.

Subscription price, $3 per annum, invariably in advance; foreign countries, $3.60; students while attending college, $2; single copies, 25 cents.

Rejected manuscripts will not be returned unless postage is forwarded.

Subscribers are earnestly requested to notify the Business Manager immediately upon changing their address.

Alex. Eger, 34 East Van Buren St., Chicago, Ill., Veterinary Publisher and dealer in Veterinary Instruments, Books, and Drugs, is the authorized agent for the REVIEW *in Chicago and the Middle West, and will receive subscriptions and advertisements at publishers' rates.*

J. B. LIPPINCOTT CO., PUBLISHERS, PHILADELPHIA, were referred to through this department, in the March number, and in the reference mention was made of some of the attractions in the form of veterinary publications, advertised by them, on page 19, of the advertising department; but our readers were disappointed at not finding either the page or the advertisement, and have embarrassed this department with the number letters of inquiry in regard to the same, which, to save labor, we will answer through the same medium through which we made the reference to the page which they have failed to find. The advertisement *was* furnished to the REVIEW for publication, by the J. B. Lippincott Co., and *was* assigned to page 19 in the March number, but was separated from the rest of the ad. material in the press room. It appears on page 15 of *this* issue.

THE consensus of opinion among veterinary practitioners in regard to Zenoleum as an all-round antiseptic for every day use in practice, is, that it fits their requirements to a nicety. That is what that enterprising firm, the "Zenner Disinfectant Co.," were striving to produce, and it is what they have accomplished, and the American veterinary profession appreciate their efforts.

REVIEWS WANTED.

The following numbers of the REVIEW are needed by several gentlemen to complete their volumes. Anyone having any of them will kindly notify the REVIEW, who will give them the address of the party wanting the numbers specified. By that means they will reach their destination by one handling, and consequently in better condition than if handled two or three times. Vol. VI., Nos. 2, 3, 5, 6, 7, 8, 9, 10 and 11. Vol. X., Nos. 11 and 12. Vol. XIII., No. 5. Vol. XIV., No. 11. Vol. XV., No. 6. Vol. X., No. 4. Vol. XIX., No. 7. Vol. I., No. 2, 3 and 9. Vol. III., No. 9. Vol. V., No. 11 and 12. Also the first nine volumes. Address: Robert W. Ellis, D. V. S, 509 W. 152d St., New York.